86th YEAR

AMERICAN GAS JOURNAL

DECEMBER 1944

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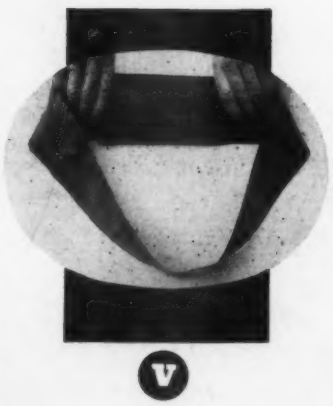

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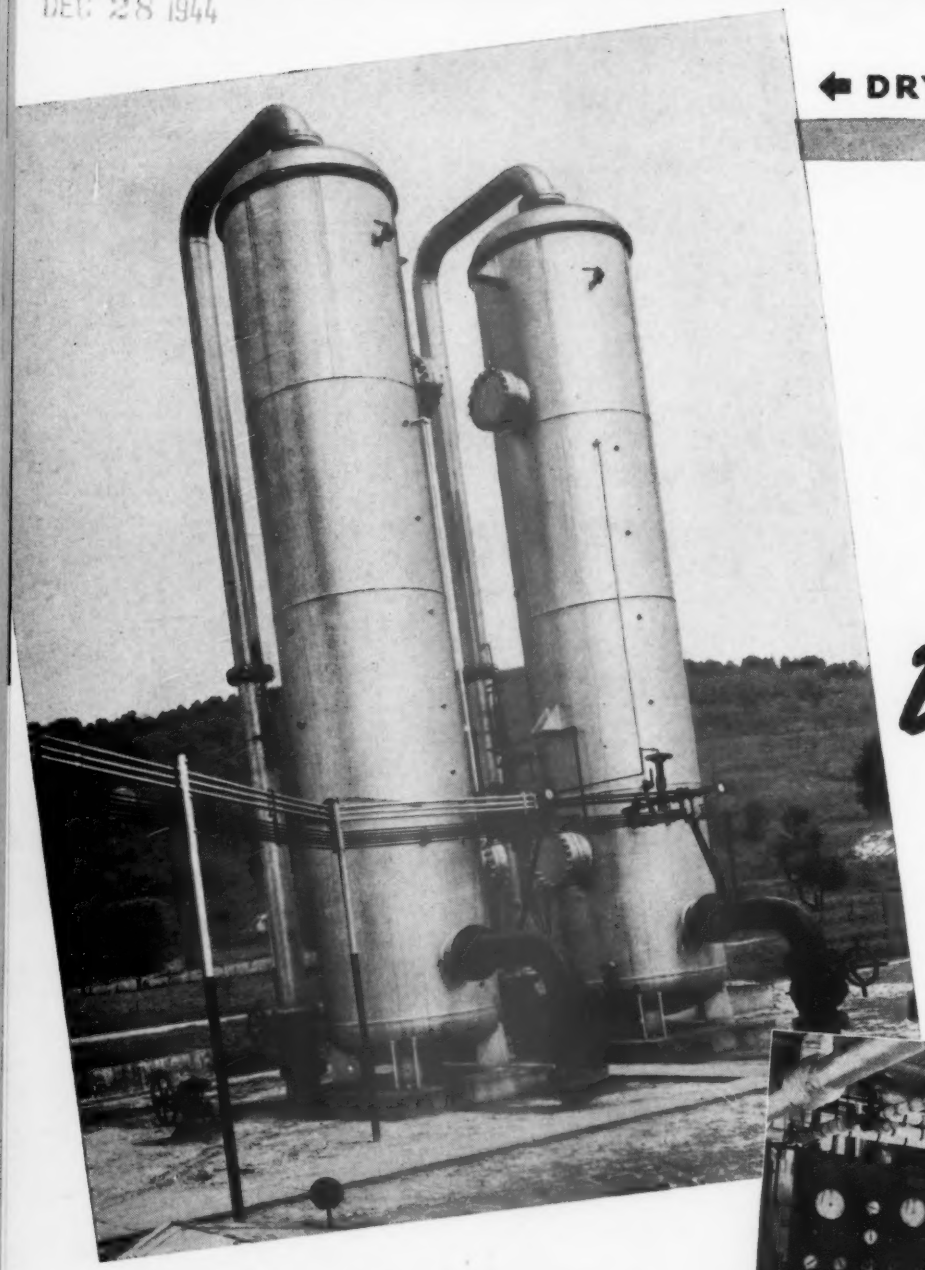

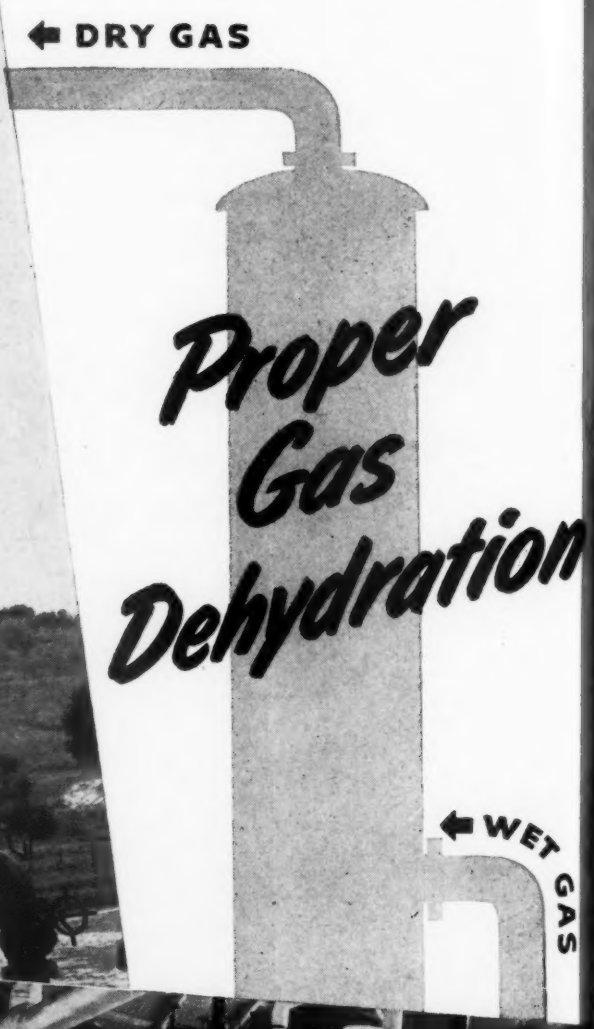

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We will be glad to furnish interesting performance data on these efficient plants.

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A QUIZ PROGRAM FOR GAS PRODUCTION MEN

What do you know ABOUT CARBURETED WATER GAS MACHINES?

Q. *Can a carbureted water gas machine be operated successfully and efficiently on 100% bituminous coal and 100% heavy oil?*

A. Yes, indeed, if it is a Semet-Solvay REVERSE FLOW Water Gas Machine.

Q. *Does operation on 100% bituminous and 100% heavy oil cause the machine to smoke?*

A. No, indeed, not the Semet-Solvay REVERSE FLOW Water Gas Machine.

Q. *Can a carbureted water gas machine be changed at will, and without alterations in the machine, from coke or anthracite to bituminous coal, and from one grade of oil to another grade?*

A. Yes, indeed, if it is a Semet-Solvay REVERSE FLOW Water Gas Machine. You can take advantage of every change in market prices.

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A. No, indeed. The first Semet-Solvay REVERSE FLOW Water Gas Machine was installed in 1937. Today there are ten plants in successful operation and three more under construction. Names gladly furnished on request.

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A. Yes, indeed. Semet-Solvay can apply the REVERSE FLOW principle to all three-shell water gas machines.

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A. No, indeed. Semet-Solvay can furnish all types of water gas machines.

Q. *Are all REVERSE FLOW Water Gas Machines Semet-Solvay Machines?*

A. Yes, indeed. REVERSE FLOW is an exclusive Semet-Solvay development.

Q. *Is it difficult to make sure just what economies and other advantages you can expect from the REVERSE FLOW process in YOUR plant?*

A. No, indeed. Semet-Solvay will be glad to make a survey and complete report without cost or obligation to you. Why not write them today?

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New Billie Burke Show
CBS
Lovable Billie Burke—in her merry mix-ups—is heard over 134 stations of the Columbia Network every Saturday at 11:30 A.M., E.W.T.

hits new high in listening audience!

Nearly 4 million hear story of Gas Appliances every Saturday morning—paving the way for your post-war sales

Here's why:

1. New title: The name of Servel's radio program has been changed to "The Billie Burke Show." Experience shows that people tune in to personalities. In Billie Burke we have a well known and a well loved star. Thus the new title should attract more listeners.

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4. Interesting commercials: The commercials are arranged so that they become part of the show. Studies have shown that commercials which are entertainingly given are liked by the public. Fewer listeners are apt to tune out or close their ears to this type of sponsor information.

These changes were made because today the public's interest in rationing and other wartime service information is waning. "Fashions in Rations" performed its wartime job well—and the new Billie Burke show will do its job equally well . . . meet today's requirements of publicizing Gas and Gas Service, and build for peacetime needs.

Servel, Inc.

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TERMINAL TOWER
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AHEAD WITH DRESSER

DRESSER INDUSTRIES now number ten.

Formerly, we were seven companies helping to bring basic services to the user more efficiently.

Our three new partners, each a specialist in its fields, both round out and broaden Dresser's scope of usefulness. This larger Dresser group can now serve industry and consumers with more products and greater experience.

The new Dresser members are bulwarked by an organization that assures their customers continued progress in product improvement, greater wherewithal for pioneering research and steady maintenance of service.

Dresser Industries, Inc., has progressed through the management principle of giving to alert, independent know-how an adequate backing and pooled resources. From these, each member draws teamed strength far greater than it could enjoy alone. The three new members of Dresser Industries, Inc., increase opportunities for mutual aid among the teammates, and at the same time, draw from the group advantages for those they serve.

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Dresser Manufacturing Division, Bradford, Pa.
The Bryant Heater Co., Cleveland, Ohio
Clark Bros. Co., Inc., Olean, N. Y.
Pacific Pumps, Inc., Huntington Park, Calif.
Bovaird & Seyfang Mfg. Co., Bradford, Pa.
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PLUS

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*Roots-Connersville Blower Corp., Connersville, Ind.
*Stacey Bros. Gas Construction Co., Cincinnati, Ohio

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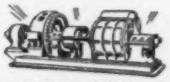
INTERNATIONAL DERRICK Oilwell pumping units, derricks and masts, drawworks, rotary tables and drilling units. Airport, communications and electric-power-line equipment and prefabricated steel buildings.



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STACEY BROS. Storage holders, tanks and pressure vessels for the gas, oil, chemical and food industries.

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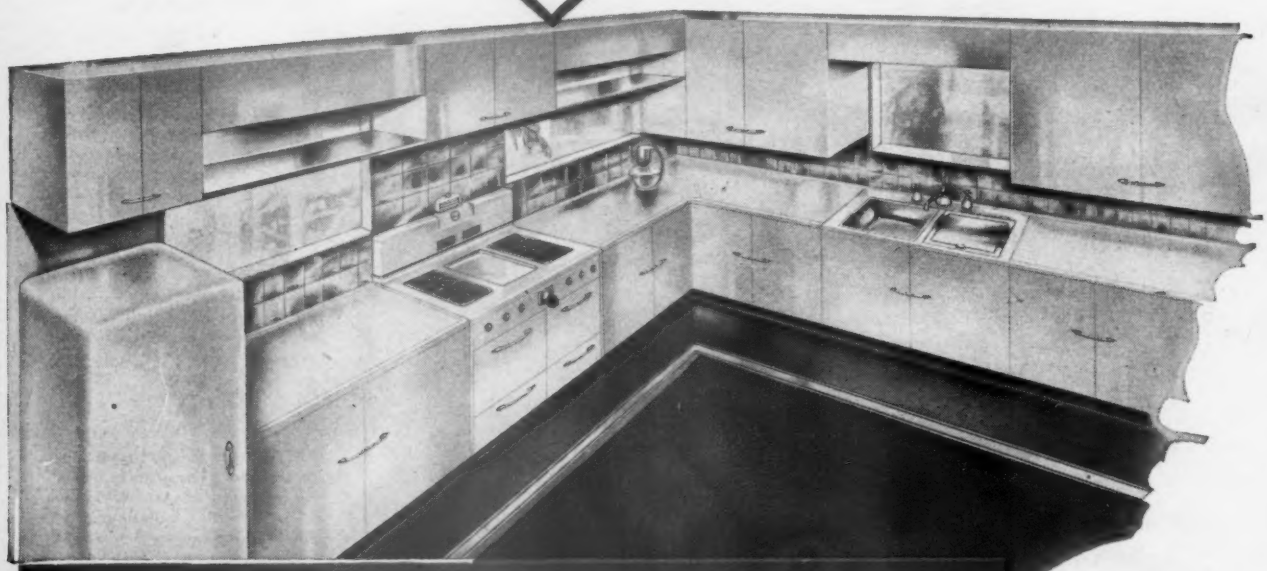

Kitchens like this...

will help sell Gas Appliances

We're not selling complete kitchens. But here is an idea for the kind of postwar kitchen that millions of home-makers are dreaming of. It's a practical dream kitchen that can come true just as soon as appliances are again available. It's the type of kitchen that will help you make future sales of gas appliances.

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Magic Chef advertising in leading national magazines is working for you month by month. It's maintaining Magic Chef's outstanding preference and paving the way for sales in the future.

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Magic Chef

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NUMBER 6

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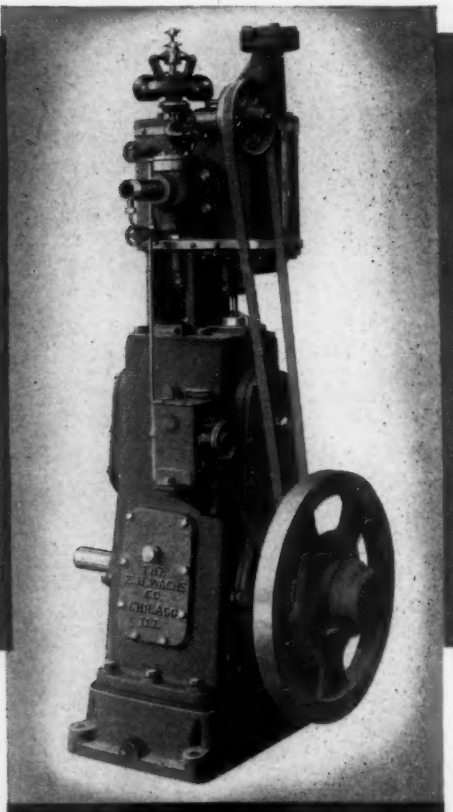
WACHS ENGINES *and* National Valves



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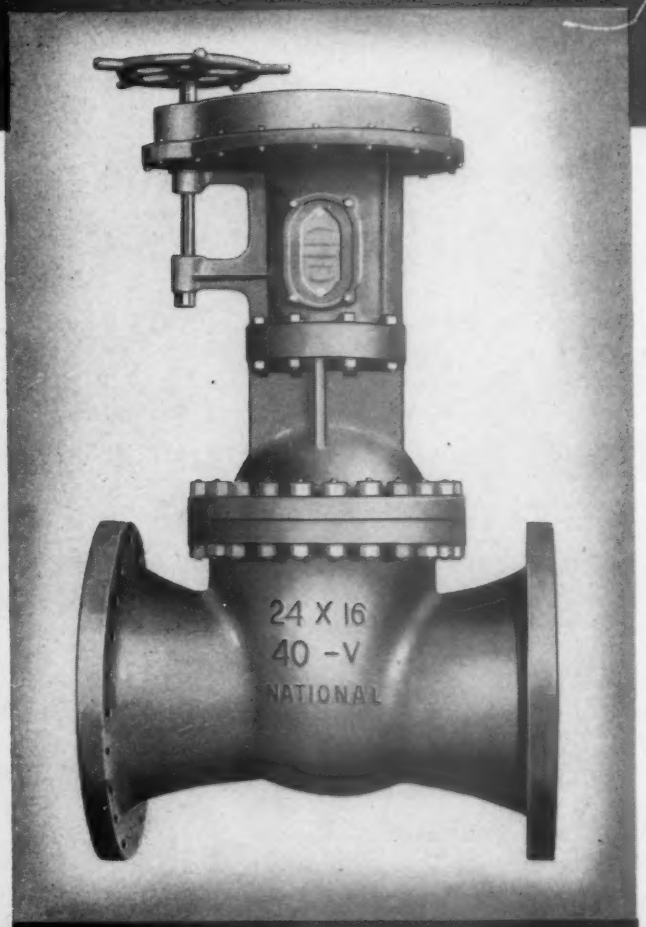

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TWO PROVEN NAMES in the *Gas Industry*

The E. H. Wachs Company has recently acquired the Valve Division of National Machine Works and in the future will be the sole manufacturers of National Valves and Gas Plant Equipment.

Wachs Engines and the complete line of National Valves—Time Tested Products in the Gas Industry—are now being produced under one roof!

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DECEMBER
1944

AMERICAN
GAS JOURNAL

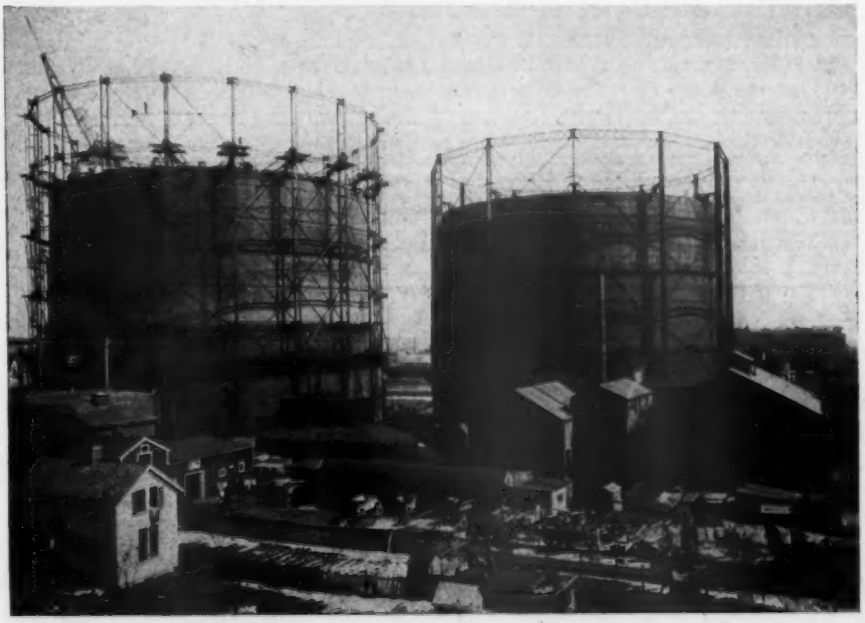
VOLUME 161
NO. 6

Purging and Repairing a Five Million Foot Holder

By
Robert I. Warnecke
Superintendent's Assistant, Holder Distribution
The Brooklyn Union Gas Company

EARLY on the morning of January 4 during a sleet storm accompanied by high winds, one of two 5,000,000 cubic foot gas holders at our Flatbush Station failed to function properly while gas was being admitted for storage and distribution. The extent of the failure and the cause were not definitely known at the time. Subsequent examination by the Bartlett Hayward Company and our own people established certain facts which prompted us to limit its operation for the remainder of the winter season.

The Flatbush No. 3 Holder as it appeared on March 8, 1909, in final stages of construction.



Gas holder inspection, operation, and maintenance are largely a matter of routine. In compliance with rules and recommendations of the Public Service Commission pertaining to the internal inspection of gas holders, it was planned to make an inspection in 1942. However, this program was interrupted because of the war.

There are four principal phases in the major repair of a water sealed gas holder:

Phase I—Severing all gas connections. Purging.

Phase II—Emptying water from the tank. Removing sediment from tank bottom.

Phase III—Inspection and repairs to interior of holder.

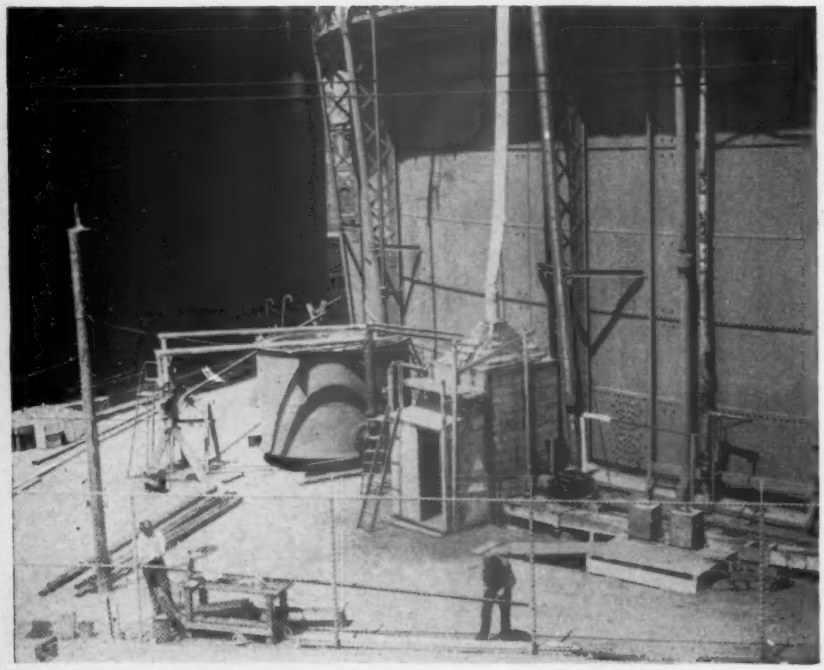
Phase IV—Refilling tank with water, purging, and connecting gas to holder.

In Phase I, the work was completed according to standard practice without unusual events.

Before removing the water from the tank, we entered the holder through one of the 30" inlet mains and from rowboats we were able to observe the operation of the holder from the interior as it was raised with air supplied from a blower. We found the fourth cup damaged at two places and the grip of the fifth section badly bent. The shafts of a number of internal cup rollers had been dislodged, and these rollers no longer served to guide properly the travel of the section. Undoubtedly this caused the damage to the cup The rollers were reassembled from the boats and an internal inspection was made by a representative of the Bartlett Hayward Company.

Dewatering

In Phase II, the disposal of the 8,500,000 gallons of water in the tank was a problem of some concern. This holder is located in a residential section of Flatbush and is only a half block from the Kings County



View of the equipment used to remove emulsified drip oils and dissolved gas from the water in the holder tank before letting the water flow into the city's sanitary sewers. At left center is the steel tank containing coke which served as a filter. Wood structure at right of tank is aerator described in this article. The flume, with sodium hypochlorite drips, is visible through fencing in right foreground.

hospital. It was necessary to discharge the water into city sewer mains which serve as sanitary sewers for thousands of our customers' homes along the line. The water in the tank contained considerable amounts of emulsified drip oils and dissolved gas. We had reason to believe that this water if discharged directly into the sewer without treatment would create a nuisance to many of our customers and might be costly to the company.

With the able assistance of our Laboratory we experimented with a small pilot plant and finally built a water treating plant which consisted primarily of a coke filter, aerating tower, and provision for chemical treatment.

The water was first syphoned out of the tank into a coke filter which consisted of a steel tank, 12 feet in diameter, containing about 13 tons of range size coke. From the filter, the water was pumped, meanwhile being preheated, into the top of the aerator, which was a wooden structure having a series of wooden baffles which served to break up the stream of water. A blower in the bottom of the tower blew air and steam, which was introduced at the bottom, in counterflow direction to the water. The gassy vapors were discharged through a 100 foot canvas stack attached to the top of the tower. The water flowed from the tower in a wooden flume to a sewer catch basin.

Sodium hypochlorite, a strong germicidal agent, was added in small quantities at the head of the flume and was well mixed with the water as it flowed to the catch basin. The chemical treatment was coordinated with the flow of sewage. During periods of heavy flow less chemical was added, and during the night and early morning the amount was increased.

This method of treatment proved effective. It was originally estimated that with chemical treatment alone, 2,500 gallons of sodium hypochlorite would be needed per million gallons of water. Actually we used only 180 gallons per million. This did represent a saving, but of far more importance to us was the fact that as far as we know, the company received only one complaint of odor that might possibly have been traced to the sewer main used.

Drip Oil and Sludge

After the removal of the clear water there remained in the tank approximately 83,000 gallons of emulsified drip oil and 625 tons of sludge.

The drip oil was for the most part probably an accumulation of deposit from our district main drips which was dumped into the tank of this holder some years ago. The coke was removed from the coke filter tank and the drip oil pumped into it. Some heavy sludge settled to the bottom and the oil was pumped into our drip trucks and hauled to Citizens Works for disposal in the separators.

The remaining 625 tons of sludge was hoisted from the tank bottom and hauled away to the city dumps. This work was done by a contractor in 16 days.

Inspection and Repairs

With tank bottom cleared we entered Phase III. A holder is essentially a rather simple structure, but because of its size it is constructed of many component parts all of which have rivets, bolts or welded joints. This particular holder was constructed with approximately 750,000 rivets and thousands of nuts and bolts. A number of rivets and bolts were found to be weakened largely because of corrosion. Several thousand rivets, bolts and nuts were replaced and rivet heads which were badly corroded were built up by arc welding.

There were many other seemingly small items of repairs which were done but each was very important to insure safe and proper operation of the holder. Most of the repairs were between or under the landed sections of the holder and the confined working space made the task both tedious and time consuming. Repairs to the damaged sheets and much of the welding was done by an outside contractor.

On the suggestion of one of our employees, a wooden staircase was installed from the crown of the holder to the tank bottom. This staircase, which can be removed and used again, replaced the 50 foot straight ladder which customarily was used to reach the bottom of a tank. This innovation proved to be a great convenience to both workmen and supervisors who formerly were obliged to descend the straight ladder in a safety harness, one at a time. One slip on the ladder without a safety belt might mean a sheer drop of 50 feet to the steel bottom of the tank. Furthermore, it is estimated that approximately 1,000 man hours were saved by its use.

Incidentally—and this is a credit to the men who worked on this job—the cleaning of the holder was completed without a single disabling injury.

(Concluded on page 54)

House Heating Load Emphasized At Gas Company Manager Conference

THE FIRST of a series of Company Managers Conferences was held by the New England Gas Association in Boston, October 20th, to study the fundamental problems of the industry and emphasizing the house heating load. It was a one day meeting and was attended by fifty-four gas company managers. Hall M. Henry, President N.E.G.A. presided and R. J. Rutherford, Chairman, Company Managers Conference Committee summarized the objective of the meeting.

Two detailed company case studies were presented. One by Gordon G. Howie, Vice President, Cambridge Gas Light Company, representing one of the larger New England companies, and one by John A. Weiser, President, The Newport Gas Light Company, representing a small company.

The studies presented by Messrs. Howie and Weiser on gas house heating covered both the production and the investment costs required to supply this load. They represented the individual analyses of the Cambridge and of the Newport companies and thus did not necessarily reflect the appropriate figures for the New England gas industry as a whole.

No attempt was made in these studies to evaluate the efficiency of other than standard and conventional methods for supplying the heating load. It was felt that the presentation and discussion of these two company studies would disclose the various production investment problems connected with supplying the heating load through these standard and conventional methods.

A more exhaustive study of other and newer ways of serving the heating load might well have produced totally different results. The efficiency of such other methods and fuels on over-all costs of producing gas for heating purposes is now engaging the attention of various industry sources among which are the A.G.A. Post-War Planning and Gas Production Research Committees, the Institute of Gas Technology, the Battelle Institute, various educational institutions and leading manufacturers of gas production equipment.

These two studies were presented for the 3 primary purposes (1) of securing the benefits of cooperative industry thinking on all of the possibilities of the standard and conventional methods of producing gas at the lowest over-all cost, (2) of stimulating thinking and action towards the assembly and application of known methods for increasing capacities or lowering operating costs and of developing to the fullest the lowest operating costs and maximum increases in capacities obtainable with these or new ideas and processes in conventional types of equipment, and (3) of encouraging group support of and adequate research into both existing and newer and more economical methods of producing gas.

In addition to the ultimate investment which a company might face, the Cambridge company showed that a considerable house heating load can be secured with relatively minor plant investment costs through correcting bottlenecks in existing plant facilities. This possibility might well be found true for a large segment of the New England gas industry but it can be determined only by local studies.

Certain definite conclusions were reached, as follows:

1. The house heating load is of vital importance to the New England gas companies.
2. The production investment costs with conventional equipment place a substantial burden in fixed charges on the heating load.
3. Some companies may not be realizing the maximum capacities possible with existing equipment.
4. Certain companies can take on added loads with minor investment costs by correcting bottlenecks in existing plants.
5. Other methods should be studied to see what can be done in meeting house heating expansion requirements.

Our Needs

1. Low-investment-cost and/or low-operating-cost equipment to serve the heating load on the most economically favorable competitive basis possible.
2. A knowledge of how to secure maximum capacities thus making possible the lowest investment cost per unit of capacity with existing equipment.
3. A knowledge of how to obtain the lowest operating costs with existing equipment.

Hall M. Henry

How We Can Solve These Problems

1. By research into new methods, processes and fuels.
2. By studying how we can increase capacity on existing equipment and obtain lower operating costs.

Various steps which should be taken were presented in six parts as follows:

Recommendations for Action

1. Research Into New Methods and Processes.

President Henry outlined the high spots of the new A.G.A. research and industry development program and then invited further comments from Mr. Bertolette who is actively assisting in the advancement of the program in New England. Mr. Bertolette indicated the importance of the new $1,000,000-per-year program to the industry and to each

different company. He explained the open-minded interest which his board of directors had recently shown in approving his company's contribution to the program and urged the various company managers to study it, to present it to their boards of directors, and to make clear the importance of each company's participating.

Mr. Henry indicated that, while he fully approved the program as a whole as far as it went, he felt that the total money to be raised for all purposes was inadequate. His own company had expressed a willingness to pay its share of a $3,000,000-per year industry program out of which $1,000,000 would have been applied to production research. He felt that the $350,000 now allocated for this item out of the new fund of $1,000,000 now being raised for the research and development program was wholly inadequate in view of its vital importance to the industry.

He requested the company managers to study the new program and, if they agreed with his views, to so inform the A.G.A. Mr. Henry suggested the desirability of a conference of the manufactured gas companies at which the possibility of securing an additional fund for production research might be discussed. He felt that, if the A.G.A. management were informed that a number of New England gas company managers favored such an increase, this would facilitate the calling of a special conference of the manufactured gas companies to discuss the matter.

It was generally agreed that the New England gas company executives would support the new A.G.A. research and industry development program.

2. Joint Cooperation By Accounting and Operating Divisions.

President Henry indicated that considerable emphasis at some Operating Division meetings had been placed on increasing the capacities of the generating equipment which represents less than 20% of the total investment.

It was unanimously agreed that:

A. An Association committee, to be known as "The Cost Accounting Code Committee," be appointed to be composed of members of both the Accounting and Operating Divisions for the purpose of developing a cost accounting code to include both operating cost and investment costs. The code should develop the operating cost and investment costs according to the following 5 basic functions or any appropriate modifications thereof.

(1) *Water Gas Sets*—17.6% of total plant equipment: 11ft. machine, blower, blast header, automatic charging machine.

(2) *Gas Cleaning Equipment* — 20.6% of total plant equipment: Condensers, purifiers, Cottrells, tar separators, exhauster.

(3) *Steam Equipment*—35.9% of total plant equipment: Waste heat boilers, steam accumulators, boiler plant.

(4) *Miscellaneous Items*—25.9% of total plant equipment: Meter, oil storage tank, water gas house, foundations, piping.

(5) *By-product Processing*—not included in above percentage breakdowns.

B. A questionnaire would be sent to the member gas companies based on this code and from which the committee would gather the operating costs in the different categories and the investment by these functions.

3. Studies By Production Subcommittee of Economic Survey Committee.

It was unanimously agreed that:

A. The replies from the above questionnaire (IV 2 B) would be turned over to the Production Subcommittee of the Economic Survey Committee for analysis and action. This subcommittee would analyze the replies to determine those companies that have the lowest operating costs and minimum investment costs.

B. This subcommittee would arrange for visits to be made to those companies which were found from the analysis to have the lowest operating costs and minimum investment costs to determine whether any factors which produced these better-than-average results could be used by other companies.

C. This subcommittee would investigate and report on what can be done with other processes and fuels not now being generally adopted and used.

D. This subcommittee would, where feasible, carry on local tests to establish the economic possibilities of these other processes and fuels in serving the heating load.

E. It was suggested that the subcommittee contact any appropriate A.G.A. committees before engaging in any specific tests or research to ascertain that any proposed activities were not already specifically under way.

4. Study Of Distribution Costs In Serving The Heating Load.

President Henry asked for a showing of hands as to how many company-managers were making studies of distribution investment costs as related to house heating. A half-dozen hands were raised. He inquired how many other company managers were planning to conduct such studies. About the same number of hands was raised. He indicated that, if he could help any of the company managers by providing any pertinent statistics or suggestions, he would be glad to do so.

It was unanimously agreed that another Company Managers Conference be held in the near future at which case histories would present the various factors involved in connection with distribution costs for house heating. The meeting would be conducted along the lines of the October 20th meeting.

5. Study Of Over-All Economics Of Serving The Heating Load.

It was unanimously agreed that the Company Managers Conference Committee plan a meeting at which the over-all economics of serving the heating load would be presented.

6. Preparation Of Material Covering Growth Possibilities.

President Henry read a statement from the August 21, 1944, issue of "Moody's Bond Survey" in which this service stated: "Long term prospects for the manufactured gas industry, in our opinion, are unimpressive, and generally speaking we recommend against commitments in bonds of companies thus engaged.... However, the process of deterioration which became evident in the last decade may again be resumed, because the basic factors responsible for that experience are likely to become operative once again under peacetime conditions."

Mr. Henry further stated that an insurance company had recently refused to purchase bonds of a gas company because the insurance executive felt that the future of the gas industry was closely related to the heating load and that the industry had not solved the economics of serving this class of business.

He also made the point that it is evident that, if the gas industry wishes to finance on low terms or to finance at all, it must take steps to rectify the present attitude of such financial sources towards the gas industry. He emphasized the im-

portant point that it should be possible to do this in view of the fundamental facts and that, therefore, it was important that the group take appropriate action.

Mr. Henry also stated that the A.G.A. had taken some action nationally on this matter and that the New England gas companies should help furnish them with data as well as acting regionally on their own behalf.

It was therefore, unanimously agreed that:

A. The Company Managers Conference Committee would prepare a questionnaire to be sent to all member gas companies from which an analysis would show:

(1) The loads that can be added with bottleneck eliminations:
   (a) The increase in daily and in annual send-out that can be attained.

(2) The investments required to eliminate these bottlenecks.

(3) The extent to which and the way in which certain companies have forged ahead during recent years contrary to the general experience of the industry, thus showing that there are no basic or inherent factors of deterioration.

B. The New England statement, plus any pertinent A.G.A. material, should be distributed to:

(1) New England financial publications.

(2) Financial editors of New England newspapers.

(3) Gas company managers for employee or other local distribution uses.

C. Because it is a national as well as a New England problem, the New England data should be sent to the A.G.A., which is now working on the matter, to be included with national statistics and submitted to Moody's.

Action Regarding Appliance Production Restrictions

The following communication was sent to the Presidents and to the Managing Directors of the A.G.A. and the A.G.A.E.M.

"Fifty gas company managers, representing about 95% of the New England gas meters, assembled at a meeting of The New England Gas Association in Boston on October 20, 1944, unanimously approve the following message:

'That the American Gas Association and the Association of Gas Appliance and Equipment Manufacturers promptly use their full efforts with the WPB, OPA and other governmental agencies to the end that a removal of restrictions be made as speedily as possible regarding the use of materials and labor required for the production of gas appliances commensurate with the necessary production of war materials and, further, that these efforts be devoted to securing for the gas industry the same removal of restriction timing concerning such materials and labor as may be applied to other and somewhat similar civilian production'."

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An outstanding post-war sales opportunity! This is evidenced by the hundreds of inquiries resulting from our advertising in 30 magazines. Countless families plan to build or remodel . . . and they'll want *modern* heating and ventilating.

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New-day successor to old-fashioned central heating. Gas-fired, circulated warmth . . . cooling summer ventilation . . . *controlled by zones or rooms.* Flexible comfort for large or small homes.

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PAYNEHEAT

30 YEARS OF LEADERSHIP

GAS FUEL HAS EVERYTHING

East Ohio Gas Company Announces Prompt Settlement of Claims

THE East Ohio Gas Company took prompt action to settle all claims resulting from the recent fire at their gas liquefaction plant. Mr. J. French Robinson, President of the company, inserted the following statement in all Cleveland newspapers:

"To facilitate early restoration of homes and the rehabilitation of families who suffered in the disaster area, The East Ohio Gas Company proposes to settle promptly all valid claims for injury to person or property, including loss or damage to automobiles, to buildings and contents, and also death claims, as soon as the actual amount of such loss or damage can be ascertained and agreed upon. Persons having claims may present them on any week day between the hours of 9:00 A.M. and 8:00 P.M. and Sundays between 10:00 A.M. and 4:00 P.M. at Room 311, East Ohio Gas Building, corner East 6th Street and Rockwell Avenue.

"It is not necessary to incur any expense or to employ any one to aid you in preparing or presenting your claim unless you so desire.

"Where loss or damage to property is involved, title papers and insurance policies should be submitted with the claim."

During the past few years the company has been developing an underground gas storage system to be drawn on for peak demands. The underground storage system is now sufficient to take care of all present demands. Therefore, the gas liquefying plant will be discontinued and the holders remaining will be dismantled. A series of new gas transmission lines are now being built to facilitate the flow of underground storage gas into the distribution mains.

A final check-up of the employees of the Company, known to be dead and missing has been completed.

The following is the complete list, giving names and occupations.

Known Dead

Behan, J. G., meter repairman
Bell, S. J., field clerk
Birch, W. H., customer serviceman
Bradley, C. A., single position oper.
Bridenstine, C. W., chemist
Burnell, R. R., router & dispatcher
Chernik, A., field clerk
Clark, F. J., inspector spl.
Collins, J. P., customer serviceman
Daiber, C. J., chief engineer at LS&R

Eberhardt, N. L., foreman LS&R
Eichler, Arthur, meter repairman
Eirons, F. M., meter repairman
Finnegan, J. M., field clerk
Finnerty, T., watchman

Foley, M., supt. garage
Graven, T., mechanic's helper
Greening, Anthony M., meter repairman
Griffith, Z., laborer
Hicks, Donald, engineer—sr.

Hill, Thomas J., meter repairman
Hogan, J. J., meter repairman
Johnson, J. E., meter repairman
Kinney, J. A., stenog.-clerk
LaVell, Ralph T., meter repairman

LaZuka, Natalie, stenog.-clerk
Locker, J. H., chief clerk
Maher, V. F., field clerk
McAllister, W. T., customer serviceman
McGough, N. J., laborer

McIntyre, J. M., mechanic's helper
McLaughlin, J. J., field clerk
McMahon, W., handyman
McNeil, R. H., inspector spl.
Mislosky, J. S., mechanic's helper

Moran, P. J., fitter
O'Donnell, Hugh, stationary engr.
Piersante, Joseph, field clerk
Pratt, Lois, field clerk
Reardon, L. J., customer serviceman

Roberts, Frank A., router & dispatcher
Ryan, Jerry, fitter
Shibley, John W., customer serviceman
Smith, J. F., automotive mech.
Stetiner, J. F., meter repairman

Stokes, Joseph M., field clerk
Sullivan, J. E., field clerk
Thoman, F. H., inspector spl.
Timony, L. J., field clerk
Trenka, George, meter repairman

Turner, C. F., chief chemist
Walker, M., gen. fmn.-meter repair
Yacona, John, mechanic's helper

Missing

Benson, George, foreman garage
Cassano, A., mechanic's helper
Davidson, F. W.,, inspector spl.
Finnerty, R. E., meter repairman
Griffin, R. H., machinist

Holtz, L., dist. fmn., street
Hrovat, F. J., meter repairman
Jester, Harold W., mechanic's helper
Kaestle, F. E., inspector spl.
King, J. V., mechanic's helper

Moorman, E. G., mechanic's helper
Munck, W., meter repairman
Myers, H. W., gen. fmn.-meter rep.
Nelson, A. S., meter repairman
O'Brock, E. R., inspector spl.

Raymor, F. S., supervisor-hse. htg.
Shannon, Maurice, field clerk
Sowl, E. L., customer serviceman
Wendelburg, C. L., meter repairman
Zawistowski, N. C., meter repairman

A.G.A. Laboratories Open Temporary Offices

Temporary offices have been established by the American Gas Association Testing Laboratories for the purpose of carrying on, following the devastating Cleveland fire which resulted in severe damage to the Laboratories and injuries to eight employees and five visiting manufacturers who were burned while escaping from the fire-swept area.

The temporary offices are in the Research Laboratory of the American Society of Heating and Ventilating Engineers, which were obtained through the generosity of that organization which immediately offered the use of its premises until such time as the Laboratories could be fully re-established. They are located at 10700 Euclid Avenue, Cleveland 6, Ohio. The telephone number is "Randolph 9301."

The fire, which spread to the Laboratories in a matter of a very few seconds, completely gutted all offices and destroyed almost all records and research data with the exception of some testing and inspection files which while charred are still usable. The intense heat penetrating the building before the fire reached it, together with alarms spread by a number of members of the staff, fortunately gave sufficient warning to enable every person to leave the Laboratories without injury. Those burned were among the first to leave and apparently suffered from the effects of radiant heat in the street while making their escape from the devastated area. Contrary to an early report no explosion occurred in the Laboratories at any time, and no fire originated on their premises.

Three women scientists, Virginia Boyer, Marjorie Gast, and Elizabeth Myers were among the injured employees. Others were E. J. Abbott, Herman Benditz, John J. Matter, J. B. Morton, and T. W. Patterson. The manufacturers burned were Marius Marrapese of The W. J. Schoenberger Co., Leslie Vixler of The Patrol Valve Co., Earl Hillebrand of the Florence Stove Co., J. C. Scherrer of The Security Manufacturing Co., and George Reznor of

The Reznor Manufacturing Co.

While the second floor offices suffered the most, other sections of the building and its equipment including miles of piping will require considerable time before research and testing activities can be resumed on a normal basis. Operations connected with the production of automatic oxygen regulators for the Army Air Forces are being given top priority in scheduling resumption of work due to the urgency of this war contract.

Plans to expedite restoration of testing activities as quickly as possible are being formulated. Determination of the full extent of losses and making of necessary building repairs will require time. A substantial part of the testing equipment was apparently undamaged except for the effect of smoke and water. The majority of appliances were not seriously damaged although a large number of accessories, awaiting test, were destroyed.

The substantial and fireproof construction of the Laboratories was not only responsible for keeping it from being completely destroyed but was instrumental in saving surrounding buildings and homes on two sides. These remained practically intact except for broken windows. The Laboratories' four gas holders likewise withstood the fire with little damage.

A. G. A. Activities

Technical Section Committees Hold Luncheon Conference

J. French Robinson, President American Gas Association presided at a luncheon conference of all Technical Section Committees which met in New York November 8th and 9th to organize work for the new Association year. President Robinson was supported on his right by the Chairman of the Technical Section L. E. Knowlton, Providence Gas Co., Providence, R. I., and on his left by L. J. Eck Vice-Chairman of Technical Section along with P. T. Dashiell Chairman Gas Production, Research Committee, Manufactured Gas Department, Philadelphia Gas Works Co., Phil. Pa., and George H. Smith, Director of Natural Gas Department, American Gas Association, New York. During the meeting Chairman Knowlton appointed a Committee of the Technical Section Chairmen who had served with the late Charles F. Turner, Immediate Past-Chairman of the Section, to consider a lasting memorial to Mr. Turner's memory. In addition a Committee was appointed to arrange for a suitably engrossed resolution to be presented to Mrs. Turner.

Peterson Appointed Chairman Personnel Committee

Gordon M. Peterson, assistant to the general commercial manager, Public Service Electric and Gas Co., Newark, N. J., has been appointed chairman of the Personnel Committee of the American Gas Association, it has been announced by J. French Robinson, president of the Association.

Engaged in a continuing study of industrial relations problems, the Personnel Committee is now in its ninth year as an Association activity. In addition to making important war contributions through manpower studies, the committee is now devoting particular attention to the problems of returning servicemen.

Mr. Peterson is a recognized authority on industrial relations, having been active for many years in personnel committee work of national associations in both gas and electric utility industries. A graduate of Princeton University in 1925, he joined the Public Service Electric and Gas Company immediately after completing his formal education. For several years, as director of educational work, he was in charge of the company's employee training program. He was appointed to his present position in 1940

At the Luncheon Conference, L. to R.: P. T. Dashiell, Chairman, Gas Production Research Committee, Manufactured Gas Department, Philadelphia, Pa.; L. E. Knowlton, Chairman, Technical Section, Providence, R. I.; J. French Robinson, President, A.G.A., Cleveland, Ohio; L. J. Eck, Vice Chairman, Technical Section, Minneapolis, Minn.; George H. Smith, Asst. Managing Director, A.G.A., New York (Director, Natural Gas Department) *Photo A. Gordon King*

At the A.G.A. Luncheon Conference. 1: C. W. Wilson, Chairman, Chemical Committee, Baltimore, Md.; W. R. Fraser, Vice Chairman, Chemical Committee, Detroit, Michigan.
2: J. V. Postles, Chairman, Technical Section Post War Cooperating Committee, Philadelphia, Pa.; L. J. Willien, Asst. Director, Institute of Gas Technology, Chicago, Ill.; S. P. Cobb, New York, N. Y.; L. J. Eck, Vice Chairman, Technical Section, Minneapolis, Minn.
3: P. T. Dashiell, Chairman, Gas Production Research Committee, Manufactured Gas Department, Philadelphia, Pa.
4: J. I. Yellott, Director, Institute of Gas Technology, Chicago, Ill. *Photos A. Gordon King*

Miss Fowler Home Service Chairman of A.G.A.

Appointment of Colleen Fowler of Kansas City, Mo., as chairman of the Home Service Committee of the American Gas Association has been announced by J. H. Warden, chairman of the Association's Residential Gas Section.

Colleen Fowler

For the last seven years, Miss Fowler has been Director of Home Service for the Kansas City Gas Company. Prior to that time she was a Director of Home Service for the Kansas Electric Power Company.

In 1940, she was Home Service Chairman for the Midwest Regional Gas Sales Conference and through her other Home Service activities is well known in the gas industry.

Rogers Appointed Chairman Accident Prevention Committee

W. T. Rogers of the Industrial Relations Department of Ebasco Services, Inc., New York, N. Y., has been appointed chairman of the Accident Prevention Committee of the American Gas Association it has been announced by J. French Robinson, president of the Association. This committee is the clearing house for all Association matters pertaining to safety in the gas industry, including the award of McCarter and other accident prevention awards.

An expert in personnel and safety work, Mr. Rogers is a member of the A. G. A. Personnel Committee and of the following: Accident Prevention Committee, Edison Electric Institute; Safety Committee, American Institute of Electrical Engineers; Executive Committee, Public Utilities Section of the National Safety Council. He is also a member of the American Society of Safety Engineers and the Society of American Military Engineers.

A graduate of the Polytechnic Institute of Brooklyn and the New York University School of Business Administration, Mr. Rogers also specialized in advanced industrial relations studies at the Columbia University School of Business. Prior to association with Ebasco, he was engaged in engineering and personnel work for Consolidated Edison Co. of New York, Inc. His earlier experience included organization of personnel activities in the New York & Queens Electric Light & Power Company.

A.G.A. Window Display Contest

The Residential Gas Section of A.G.A. through F. W. Williams, Secy., has announced a window display contest in the interest of promoting the 6th War Loan drive.

The Committee offers War Bond prizes in 3 groups, A, B and C; first prize a $50 bond; second, $25 bond and third, honorable mention; plus a Treasury Citation for all winners.

The rules of the contest follow:

1. Each display must feature a $100.00 War Bond or reproduction thereof.
2. Each entry will be judged in its own group.
3. Photographs must have the following information on back:
   Name and address of utility;
   Name of person responsible for display;
   Dates when display was on view to public;
   Class in which display is entered
   (A) For cities of 100,000 population or over
   (B) For cities between 50,000 and 100,000
   (C) For cities under 50,000
4. Closing date is December 26, and all entries must bear a postmark not later than midnight of that date.
5. All photographs become the property of the contest committee and will be presented to the United States Treasury for such use as the Treasury may desire
6. Entries will be judged for their bond selling appeal, attention value, artistry and originality.
7. The decision of the judges will be final.
8. The prize awards are to be payable to the individuals whose names appear on the back of the prize winning photos.
9. All entries are to be mailed to A.G.A. Sixth War Loan Contest Committee, care American Gas Association, 420 Lexington Ave., New York 17, New York.

George W. Browne is Chairman of the Window & Store Display Committee.

Williams Appointed Sec'y, Residential Gas Section of A.G.A.

F. W. Williams has been appointed secretary of the Residential Gas Section of the American Gas Association, effective November 1, 1944, according to an announcement by Alexander Forward, managing director of the Association. He succeeds John W. West, Jr., who has been secretary since January 1, 1926. Mr. West, as assistant managing director, will continue his present administrative responsibilities in connection with the operation of the Section.

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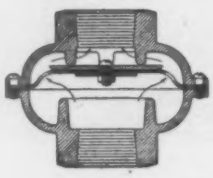
F. W. Williams

Mr. Williams has been assistant secretary of the Residential Gas Section since September, 1940. He joined the American Gas Association staff in 1937 as assistant director of the Home Appliance Planning Bureau in which capacity he helped direct the A. G. A. National All-Gas Home Architects and Builders Contest. He has conducted many of the Residential Section's activities, including the CP Ranger Club.

Prior to joining the A. G. A. staff, Mr. Williams was associated with The Brooklyn Union Gas Company as new business representative specializing in architects' and builders' contacts.

Pressure Controls for Gas and Air



HORIZONTAL
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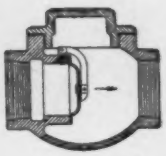

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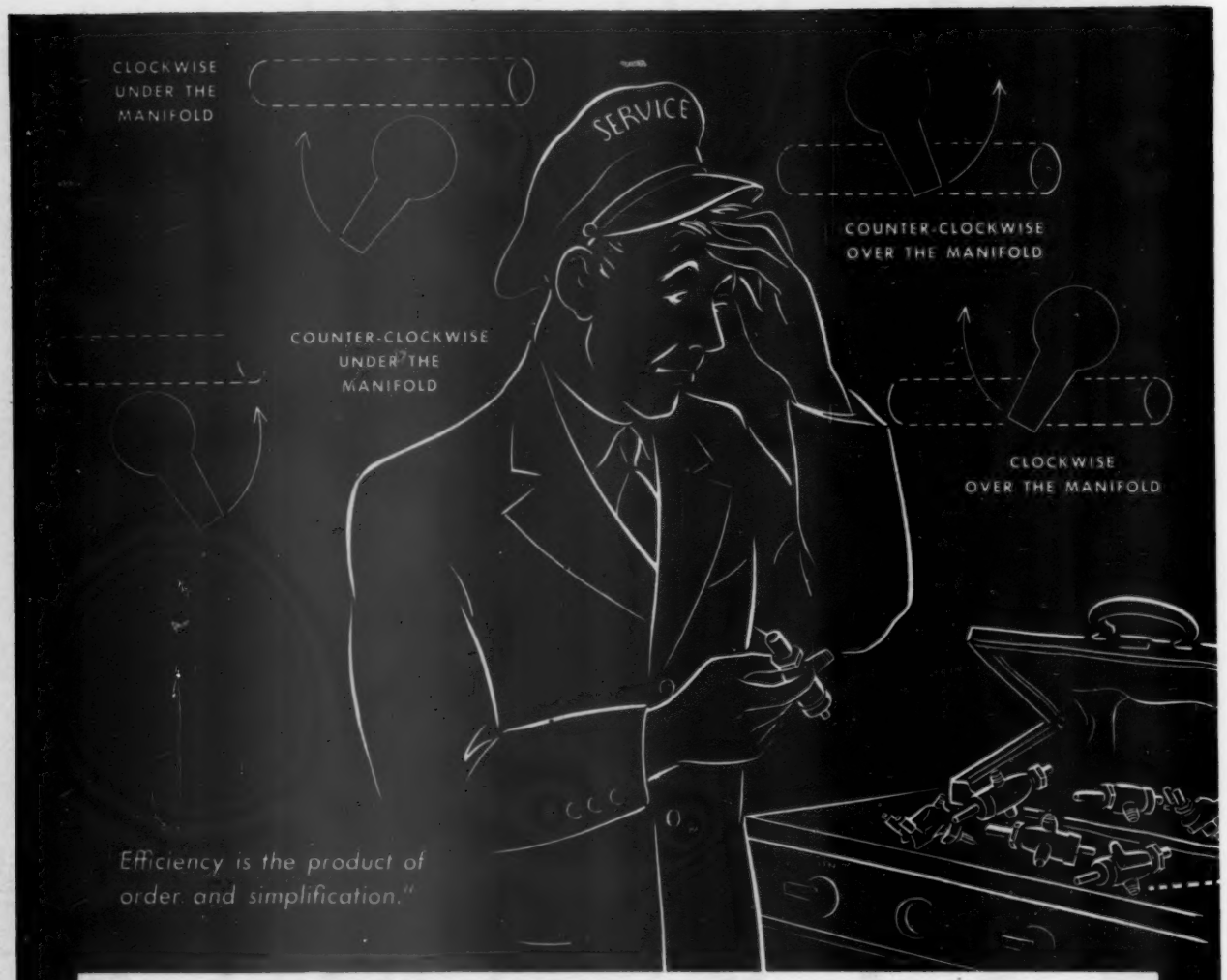
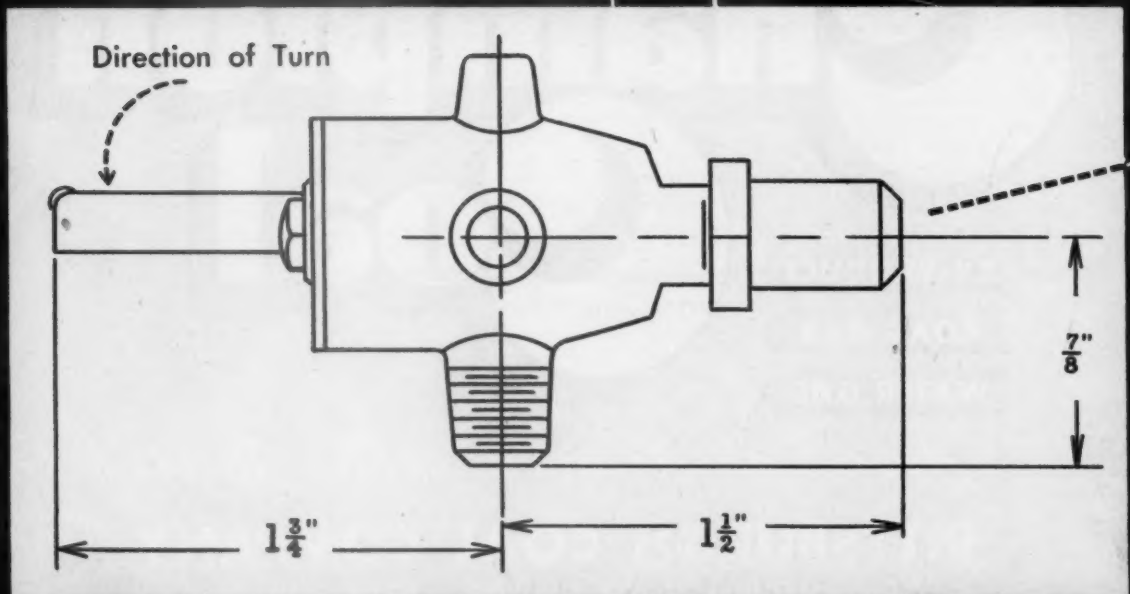
What will the gas range of





the future be like . . . and WHY?

DISCUSSION NO. 10

Top burner valves will be standardized

Standardization of parts to achieve greater all-around efficiency is good common sense . . . unless it tends to hinder development. The decision to standardize or not to standardize hinges on these considerations.

In the case of top burner valves, we feel that standardization of certain boundary dimensions and the direction of turn of the stem is justified and highly desirable for the Range of the Future. After all, there is no good reason why some valves should operate clockwise and others counter-clockwise . . . why some valves should be above the manifold and others below . . . why valves should be made to a myriad of specifications. On the other hand, there are very good reasons for simplification of this vital key to operation of the range.

Standardization to this extent will benefit the utility, the dealer, and the manufacturer in these ways:

(a) Service will be less costly . . . standard parts will eliminate repeat calls because repairs can be made quickly and properly, without improvising. This in turn will eliminate one source of customer dissatisfaction—will help to keep the housewife convinced that gas is the ideal cooking fuel.

(b) Standardized parts would tend to lower production costs and make for faster delivery of orders, as compared with higher prices and slow delivery of special valves.

We believe that the standardized top burner valve should turn counter-clockwise to open —the standard practice in other fields of application. Other parts of the valve should be standardized, such as the length of the stem, and the distance of the orifice from the center of the valve. The specifications shown in the illustration at the left might well be adapted as a standard for the industry.

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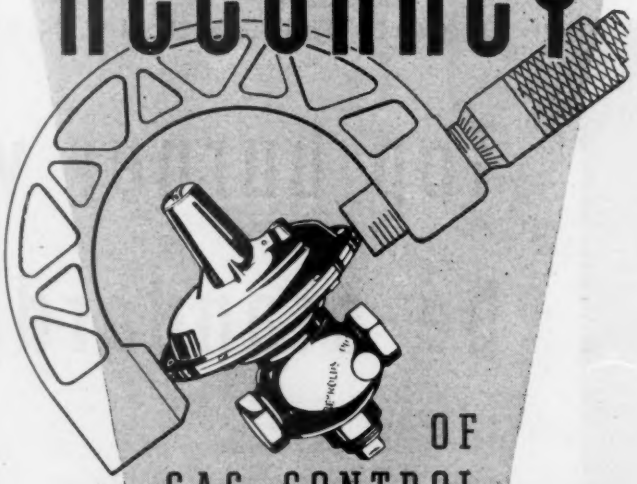
Offices in New York, Pittsburgh, Chicago, Tulsa, Houston, Dallas, Los Angeles, Seattle
In Canada: JOHN INGLIS CO., LIMITED

ACCURACY



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GAS CONTROL

REYNOLDS GAS REGULATORS
AS ACCURATE AS A MICROMETER

● Reynolds Regulators insure accurate Gas Control. They will operate accurately either individually or in series, depending upon the conditions under which they operate . . . Long life, efficient operation, accurate regulation, reasonable cost, low upkeep—these are the vitally important inherent features built into REYNOLDS Gas Regulators through more than 50 years experience in developing, designing, building and testing Gas Control equipment . . . For complete cooperation of our Engineering Department, write our Factory, Branch Offices or Representatives.

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2nd Unit,
Santa Fe Building
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REYNOLDS GAS REGULATOR CO.
ANDERSON, INDIANA, U. S. A.

P. C. G. A. Postwar Appliance Committee Report

W. M. Jacobs, Chairman

In this report, presented at the Annual Meeting of the Pacific Coast Gas Association, September 14, 1944, Mr. Jacobs touches upon some of the high lights of the material covered by the Postwar Appliance Committee report, which had been recently submitted to the Committee for Gas Industry Development. Mr. Jacobs states that the complete report is "Intended to encourage advanced designing and departures from traditional practice wherever benefits will result."

EARLY IN 1943, Mr. F. M. Banks, then president of the Pacific Coast Gas Association, appointed a special committee, composed of both utility and manufacturer members, to study and recommend further improvements in domestic appliances. Later, two similar committees were formed for commercial cooking equipment and new types of appliances. All three were coordinated under the Pacific Coast Gas Association Committee for Gas Industry Development.

This committee on post-war domestic gas appliances has been active for nearly two years. The final report has just been submitted to the Committee for Gas Industry Development, and I will try here to touch upon some of the highlights of the material covered.

The committee early concluded to use existing customer surveys and sources of information and data, rather than to conduct new customer surveys under war conditions or to issue gas company questionnaires. We first summarized results of the employee appliance idea contests held in member gas companies. In addition, the committee has made several surveys on special questions among member utility companies, reporting the results, together with any new and pertinent data available from time to time, to interested manufacturers.

Finally, the committee developed its specific recommendations for post-war gas appliances. This was done by five special working groups within the committee (ranges, water heaters, refrigerators, heating equipment, and accessories and controls; the results of the latter being incorporated finally in those of the other four). These recommendations are to be printed and distributed soon in manual form. Time will permit only a brief summary and comments on these recommendations at this meeting.

General—Post-war gas appliances should comply with, but not be limited by, A.S.A. approval requirements. Further, the committee urges careful study of the research bulletins of the A.G.A. Testing Laboratory on domestic gas range and water heater research, and domestic gas burner research, and all other related available information. Particular significance is attached to developments of 100% primary air burners.

Ranges—The design and appearance of post-war ranges is of utmost importance, in view of modern concepts of kitchen design and styling. Flush-to-wall and flush-to-floor designs are urged, with provisions to facilitate installation and disconnection.

Ranges to meet customer needs on the Pacific Coast will apparently be larger than those recommended nationally. A width of from 38 to 42 inches, depth of not more than 28 inches, and work surface height of 36 inches are recommended.

Cleanability is given great emphasis. Flat, smooth surfaces, absence of cracks, exposed screws, etc., large radius bends, are all recommended. The top section should be so attractive in appearance that lift covers are unnecessary. The recommendations include specifications for finishes to conform with the cleanliness and cleanability requirement and to withstand normal use without damage. Burners must be protected from boil-overs.

White is the color recommended wherever possible. If black is used, as on wiped surfaces, its appearance should be reduced to a minimum.

Materially reduced surface temperatures is considered important. The recommendations give specific comments on accomplishing this.

Improved heat distribution of top burner-grate combinations is emphasized. Hot spots in simmer burner operation must be avoided.

All top burners should be equipped with effective automatic ignition and the burner controls located to avoid necessity of reaching over any burners to operate. The committee suggests study of top burners automatically controlled by thermostat, or turned down automatically from rated input to simmer, and then off with a time control, as a possible means of minimizing the effort and watching of cooking operations and adjusting burners for top section cooking.

Examples are offered of top burner grate arrangements to provide more room, eliminating overlapping of large pans, providing adequate working space, and eliminating tipping of pans.

Several recommendations are made concerning improvement of griddles, from the angle of appearance, cleanability, grease disposal, and uniformity of temperature.

While considerable demand among women for deep well cookers is recognized, it is suggested that this be met by supplying streamlined cooking pot of deep well type, as an accessory to avoid sacrificing top burner space. However, specific recommendations are offered for deep well cookers if built in as a recessed portion of the top section.

Ovens—Cleanability and improved finish of ovens is emphasized.

16 inches is considered a minimum width, and the height should be sufficient to permit satisfactory completion of any baking operation when performed on both racks at the same time. Ovens larger than contemporary standards are recommended.

Quiet and smoothly operating, tightly fitting oven doors are important.

Springs are given detailed comment for accessibility for servicing.

Oven racks should be improved mechanically.

Hot spots should be eliminated and surface temperatures further reduced.

Oven heat distribution should be even for all normal cooking temperature settings; it is suggested that this might be accomplished with one oven burner to maintain the temperature and a second to augment it during the heat-up periods.

The oven temperature should not be increased as a result of pilot operation alone.

Range ovens should be equipped with effective automatic ignition and automatic clock oven control should be given still greater emphasis in manufacturing and selling plans.

Glass windows high in the oven door are suggested as optional features, because of the recorded desire of many women to watch food cooking or baking. An oven light is recommended at least in conjunction with glass oven doors.

Broilers—Elevated broilers are recommended, particularly in table top models. When not so provided, however, operation of the broiler section of the range should be made independent of the oven operation; i.e., the broiler operation should not be limited by action of the thermostat.

Because of the high susceptibility of the broiler to hard-to-clean splatters, it is imperative that it be made easy to clean. The recommendations include specific requirements and suggestions to accomplish this. It is recognized that the broiler is an outstanding feature of the gas range, and that no other method of broiling can equal the gas broiling operation. To effectuate further improvement, the broiler should be capable of attaining a high temperature within a short time. A "flash" type is suggested, or one that will satisfactorily brown moderately thin meat slices (½" to ¾") leaving the center rare.

Broiler doors should fit tightly without leakage and it is important that they operate smoothly and without noise when hot or cold. Racks, grids, and pans should operate smoothly and quietly regardless of temperature, and should not distort due to quick change in temperature. Range broilers should be equipped with effective quick automatic ignition.

Controls—Specific and detailed recommendations are included concerning controls and accessories, with emphasis on precision of performance, and service accessibility.

Manufacturers should investigate the possibility of using a two stage control system that will provide a sufficient input for speed preheating but will also provide a minimum input not exceeding 5,000 B.t.u. per cubic foot of oven volume. New methods for positive identification of the number of certain definite inputs for burners are recommended, so that the user will not be required to adjust the burner by observation of the flame, but can duplicate previous results. Flexibility between positions is also important.

If and when single point gas ignition is developed to a point of being feasible in first cost and dependable and foolproof in operation, it is considered preferable to electric or multiple point gas ignition.

Operation of full automatic clock controls should be simplified, so that there will be no confusion in the mind of the user.

While the question of filters for range oven pilots was given detailed consideration, this was concluded to be a general industry problem now under active consideration, and not a matter of appliance design alone.

Refrigerators — The committee has assumed that the refrigerator manufacturer is abreast of recent developments in new materials which can improve appearance, performance and price, and will use them as appropriate consistent with strength and durability. No reference is therefore made in the recommendations to new types of materials.

It is urged that every possible effort be made to reduce selling prices to the end that we can be more competitive with electric refrigerators than in the past.

There has been interest in Southern California in a counter type refrigerator for post-war new homes.

The appearance of the refrigerator must follow current style trends and be competitively abreast. The grilled vent should be maintained as inconspicuous as possible but so constructed that combustion products and warm air be deflected forward from the wall as much as possible.

The dimensions of recent models are considered generally satisfactory. If any changes are made, they should be in the direction of decreasing depth and increasing width.

Specific suggestion is offered for improving the method of holding shelves to give greater flexibility in the use of the interior.

A more satisfactory and durable ice cube release and trigger tray arrangement is needed.

Ample space for the storage of frozen foods is considered important.

Comment is offered for improving defrosting controls.

Maintenance of high humidity in the food storage compartment is a definite necessity.

Specific comment is included for mechanical means for leveling.

It is essential that design features prevent circulated air currents from wiping walls or ceilings; wall discoloration is a problem to all types of domestic refrigerators.

Automatic Storage Water Heaters—In recognition of the extensive problem of short tank life in most areas of the Pacific Coast, serious consideration by manufacturers of the factors prolonging tank life in service is urged.

It is also recommended that manufacturers particularly study comparative advantages and overall field performance of full floating vs. internal flue types of tanks, and emphasize that type which proves to be the better (reference to A.G.A. research bulletin No. 19).

Water heaters should be designed for installation flush to the wall and floor, preferably for corner locations.

The heater as completely installed should present a neat and attractive appearance. Consideration should be given to concealing the draft hood within the heater as installed.

Piping connections and mechanical parts to be concealed behind removable panels, but, together with controls and accessories, should be readily accessible from the front of the heater.

20 gallons is considered a minimum actual storage capacity of any storage water heater.

The hourly recovery capacity should be not less than 40 gallons per hour.

Consideration should be given to novel means of heat transfer to avoid local over-firing and minimize rate of accumulation of lime; an example, multi-tube construction.

The recommendations encourage design of supplementary booster heaters for higher water tempera-

tures to supply home laundries, dishwashers, etc.

Detailed recommendations are given concerning draw-off characteristics, tank features, burners, and controls and accessories. Design to minimize service requirements is emphasized.

House Heating Appliances.—These recommendations are somewhat more generalized, stating, in part, general objectives of ideal heating systems. Even temperatures, elimination of cold floors and noticeable drafts, elimination of wall discoloration, elimination of expansion and contraction noises, and facilitation of the starting up of heating appliances by the consumer are emphasized.

It is suggested that consideration be given to the basic fundamentals involved in comfort heating, such as the relative intensities of heat from different types of heating appliances and heating means, as related to human comfort. Greater emphasis should be given to designs of heating means which will yield a mild, even heat distribution, as contrasted with concentrated sources of heat at high temperature.

While it is recognized that nonvented heating appliances have been and are still important gas consuming devices and when properly and carefully manufactured, installed, and used, have satisfactorily served their purpose, it is felt there should be an increasing trend toward universal application of venting to all house heating appliances. Special emphasis should be given to having properly vented heating equipment incorporated in the original plan and construction of each building.

Appearance and sales appeal should be given more emphasis in design, and the appearance and reality of sturdiness to avoid adverse customer impression of "tinny" furnaces require attention.

Specific recommendations are made concerning factors affecting installation.

Fully automatic, safe, and reliable ignition from cold start is recommended to eliminate the need for gas company seasonal "starting" service.

Controls to eliminate alternations or intermittent operations and produce a smooth, even, overall effect are recommended.

Emphasis should be placed on control of comfort heating within each individual room and within closer limits than have been attained in the past, as for example with zone heating or with other means producing similar results.

Design and capacity of equipment for use on the Pacific Coast should take account of the general practice of daily re-heating of the home, with the house completely cooled off during the night.

Specific recommendations are included concerning service accesibility, accessories and controls, and markings and instructions.

H. C. Frizzell, President of Texas Southeastern Gas Co.

Southern Union Gas Company has announced the incorporation of its properties formerly designated as the South Texas District into a new company, Texas Southeastern Gas Company, a Texas corporation.

Southern Union had owned and operated the properties in this area since 1929.

The incorporation of the Texas Southeastern Gas Company resulted from an agreement made by Southern Union with the Securities and Exchange Commission as a part of the general reorganization of the Company.

H. C. Frizzell, who has been in the employ of Southern Union Gas Company since 1930, and in charge of the South Texas District properties since 1932, was elected president of Texas Southeastern Gas Company.

Members of the board of directors of Texas Southeastern Gas Company are H. C. Frizzell, Bellville, Texas; D. R. Zachry, Dallas, Texas; John Cain, Dallas, Texas; John D. Rogers, Navasota, Texas; R. F. Cook, Clint, Texas.

The new company owns and operates the gas distributing systems in Bellville, Brenham, Columbus, Eagle Lake, Hempstead, Navasota, Prairie View, Sealy and Waller.

Operating headquarters for the Texas Southeastern Gas Company are in Bellville.

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We are working on War Equipment and supplying Essential and Emergency Requirements for the Gas Industry.

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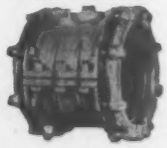
Dresser Repair Sleeves

FOR CAST IRON PIPE

DRESSER READY-PACK SLEEVE, STYLE 80

For making repairs on circumferential pipe breaks. Low-cost, pre-assembled, and highly adjustable. Serves as ideal tapping sleeve. One man can install in 5 to 10 min. Maximum working pressure, 150 psi. Sizes 3"—8" CIP.



DRESSER SPLIT SLEEVE, STYLE 57

For repairing breaks, splits and holes up to 8" long in straight run of cast-iron pipe, two sleeves may be joined for longer breaks. Maximum working pressure, 250 psi. Sizes 2"—12" CIP. Larger sizes are furnished in other styles.

FOR STEEL PIPE

DRESSER REPAIR SLEEVE, STYLE 73

Cutaway view of typical Dresser Repair Sleeve, showing how it permanently repairs pipe or pipe joints. Style 73 encloses screw and welded joints or holes in pipe up to 8" in length. Maximum working pressure, 250 psi. Sizes 2"—12" ID.

DRESSER REPAIR SLEEVE, STYLE 93

For enclosing and permanently repairing screw collars, welded joints, or splits and holes in pipe up to 8" in length. This sleeve is of the inner pack type. Maximum working pressure, 500 psi. Sizes 12¾"—24" OD.

The first frost is the signal. That is the starting gun for the maintenance man's busy season. From then on he knows that the majority of pipeline breaks and leaks will occur. So he gets prepared. He "sizes up" the situation and sees to it that his storeroom stock of Dresser Split Repair Sleeves is ready for any emergency.

Dresser Repair Sleeves are old friends of maintenance men because they *save hours of time* and *stop leaks permanently*. Quickly installed, without service shut-down, in any kind of weather, they completely enclose leaks or breaks and provide flexibility that prevents a recurrence of the trouble. A wrench is the only tool required, and unskilled labor can do the job.

There is a standard, ready-to-use Dresser Split Sleeve (or Special) for practically every kind of repair needed on the straight run of pipe or at the joint. A few of the most commonly used sleeves are illustrated at the left.

Check up on your needs now, and let us know your requirements as far ahead as possible.

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New 1000 Mile Gas Transmission Line

By

Fred A. Herr

CONFIRMING rumors prevalent for many months concerning a contemplated pipeline project of tremendous magnitude, official disclosure of a plan for constructing the country's largest diameter, long-distance pipeline, extending for nearly 1000 miles from the Texas Panhandle to Los Angeles, came on October 12 from the Pacific Gas & Electric Co.

The disclosure came when PG&E filed a registration statement with the Federal Securities and Exchange Commission as a preliminary step toward the issuance of $115,000,000 worth of refunding bonds to finance the estimated $60,000,000 cost of the pipeline and its auxiliary installations.

Sponsors of the project are the Pacific Gas & Electric Co. of San Francisco and the Pacific Lighting Corp., Los Angeles, together with the latter's affiliates, Southern California Gas Co. and Southern Counties Gas Co.

The plan calls for the organization of a holding company—the Texas-Pacific Pipeline Co.—which is to be owned jointly by PG&E and Pacific Lighting Corp.

In its statement to the Commission, PG&E set forth that in order to augment the supply of gas available to gas companies operating in California, that company and certain Southern California gas companies, have prepared plans for purchasing natural gas in Texas and transporting it by pipeline to California.

The engineering and other aspects of the plan, it was disclosed, now are under investigation. Application to the War Production Board for authority to begin construction in 1945 has been made, and petition to the W.P.B. for allocation of the necessary steel has also been filed. Preparations were also underway in mid-October, it was announced, to seek the required approval of the project from the Federal Power Commission.

"Final action on the plan will depend upon the results of pending investigations, completion of satisfactory gas purchase arrangements, the securing of necessary approvals by public authorities and such financing as may be deemed necessary or advisable," the PG&E declared in its statement.

The pipeline is planned to bring gas from the prolific Texas Panhandle and Hugoton fields, tapping gas areas estimated to contain 4½ million proven acres with reserves approximating 40 trillion cubic feet of gas.

Extending across northwestern Texas and bisecting the north-central sections of New Mexico and Arizona in a slightly southwesterly course, the pipeline would terminate near Los Angeles, its definite terminus still being undecided. Its total length, it was announced, will be just short of 1000 miles, or 993 miles.

Preliminary plans provide for a pipeline of 27¼ inch exterior dimensions as well as four booster and compressor stations along the route. It is proposed to begin construction immediately after authorization from the government agencies has been obtained, the companies hoping to have the line in operation in time for the winter season of 1945-46, if possible.

The new line, whose contemplated diameter of 2 ft. 3¼ in., would make it the largest in that respect in the United States, would make available an additional 200 to 300 million cubic feet of gas for distribution in California.

Cited as factors in support of the claim that supplementary gas supplies are urgently needed in the state were the shortages which developed during past winter seasons when industrial supplies to non-war plants had to be shut off by Southern California Gas Co. and other firms in order to provide sufficient fuel for war plants and domestic requirements.

Since the war began, it was pointed out, Southern California gas companies have been obliged to deplete their reserves to meet the demands of war industries. In addition, it was stated, heavy demands have been made on fuel oil supplies by the Navy due to the stepped up pace of the war in the Pacific theater, which has forced former users of oil to turn to the consumption of gas. Growth of population also has contributed heavily to the drain on available gas supplies.

The further fact was cited that California is one of the largest users of natural gas in the country, consuming 15% of the natural gas used in the United States, the state, on the whole, probably being more dependent on natural gas for fuel than any other state.

The Texas-Los Angeles pipeline project is the second venture undertaken in recent months to augment California's supplies of natural gas with dry gas. While that project chiefly involves transportation by pipeline, the Goleta, Calif., project, which combines subterranean storage of gas, a dry gas-well drilling program and a pipeline from Goleta to Los Angeles is regarded by industry leaders as by far the most ambitious attempt yet made on the West Coast to supply with dry gas the demand in peak periods which cannot be filled by natural gas produced with oil.

The Goleta dry gas field is located at Goleta, 10 miles north of Santa Barbara, Calif., and about 110 miles from Los Angeles. Construction of a $4,000,000 pipeline to deliver 164,000,000 cubic feet of gas from this field to Los Angeles is now underway. Construction is proceeding in two sections—a 16 inch line, 36 miles long, by Southern Counties Gas Co., and an 18 inch line, varying to 22 inches in diameter, 55 miles long, by Southern California Gas Co.

As part of this project, Pacific Lighting Corp., which controls the Goleta field, had agreed to drill four additional dry gas wells. The first of these wells (Miller No. 1) was brought in on October 14. Preliminary tests, it was reported, indicated it to be one of the most phenomenal gas producers in the history of the California petroleum industry.

Drilling on Miller No. 1 well was started on August 2, completed October 8 with hole down to 4509 feet, and the well was brought in on October 14 with production through the tubing at the rate of 12,900 m.c.f. per day, and through the casing at the rate of 145,000 m.c.f. per day. It was reported that

in producing at maximum through the casing, only a 300 lb. pressure drop at the well head was recorded, which Pacific Lighting Corp. engineers regarded as one of the most phenomenal production performances ever recorded by a California gas well.

After being blown to clear it of mud and water, Miller No. 1 was shut in with a pressure of 1750 lbs. at the well head, and was to remain so pending completion of field gathering lines, installation of meters and connections to other plant facilities. The derrick was immediately shifted to the site of the second proposed well on the schedule, Miller No. 2.

Pacific Lighting Corp. disclosed the new well did not tap or open up a new gas supply, but was drilled to increase the withdrawal rate of gas available in the structure. The company had, for several years, augmented the natural gas supply already present by the storage of large volumes of gas secured from other fields.

The Goleta field was the choice by Pacific Lighting Corp. after it had conducted a search of several years duration for an underground gas storage area that would combine the factors of adequate size of potential storage area, proper geological formation, and location not too remote from the ultimate destination of the gas. Tests indicated the formation at Goleta to consist of extremely tight sandstone with a porosity of approximately 20%. Despite the fact that some 15 billion cubic feet of gas had already been taken from the area, tests determined that pressure was still relatively high and water encroachment caused a loss of capacity of only about one half of one per cent per year on withdrawals.

Before committing itself definitely to the project, Pacific Lighting Corporation tested the Goleta formation with compressors with a capacity for injecting 30 million feet per day, and replaced existing fittings on the remaining wells with new fittings of 3000 lb. working pressure.

To feed the Goleta-Los Angeles pipeline now under construction, the company has made arrangements to increase the injection rate from 30 million to 66 million feet a day. The pipeline will increase delivery rate of gas from the field from 60 million feet a day to about 200 million feet, including original or stored stocks.

Pacific Lighting Corporation does not plan to use the Goleta field only for storing summer-gas surplus supplies. It proposes to equalize its loads by making use of the area on a daily basis also, withdrawing by day and injecting by night.

Beginning in 1939, when Pacific Lighting Corp. first considered attempting to develop the Goleta field into an underground storage area, several years elapsed before the company came into complete control. Acquisition of the innumerable interests held by three oil companies and more than 100 owners of fee interests was conducted by Leroy M. Edwards, vice-president and general manager of the company.

Pacific Lighting Corporation's Goleta undertaking, and the joint venture of that firm, PG&E, Southern California Gas Co. and Southern Counties Gas Co. in bringing dry gas from the Texas Panhandle are regarded as significant signposts for the industry, from the results of which considerable basic data should accrue to benefit the industry as a whole.

In the central and northern sections of California, PG&E has been drawing in substantial volume on the dry gas resources of the huge Rio Vista dry gas field and other smaller fields located in the upper Bay District. These areas are regarded as adaptable for repressuring and while no work along those lines has as yet been undertaken, the fields are looked upon as potential postwar repressuring areas for development similar to that in the Goleta area.

Underground Gas Storage Contract Approved by R. R. Commission

A development for still another project for storing gas for use during peak consumption periods in Southern California occurred on November 1 when the California Railroad Commission issued an order authorizing Southern California Gas Co. of Los Angeles to carry out contractural agreements entered into with the Defense Plant Corporation in which are defined the terms of payment and conditions of operation of the project for underground storage of natural gas in the Playa del Rey oil field near Los Angeles.

The approved contract provides that Southern California Gas Co. pay Defense Plant Corporation for the use of the underground reservoir sufficient money over a period of 8½ years to reimburse Defense Plant Corporation on Acquisition costs, carrying charges and costs of operation and maintenance of the storage project.

The contract provides for Southern California Gas Co. to pay for charges and costs of maintenance and operation at the rate of 3½c per 1000 cubic feet of gas withdrawn from the reservoir wells, plus any deficiency earnings, after credits to the project for receipts for sale of oil, that may fall short of meeting all expenses, plus 5% interest carrying charge on the average unrecovered investment in the project.

In addition, Southern California Gas Co. agrees to pay $200,000 annually to return to the Defense Plant Corporation its investment in the project, subject to the return of such payments and other payments, exclusive of the 3½c charge, depending on the overall recovery Defense Plant Corporation receives for the production and sale of oil from the field and other earnings.

The CRC approved the following provisions which the gas company insisted be included in the contract:

1 . . . That it may include in its rate structure any and all investments made by it in facilities constructed for the injection, storage and withdrawal of natural gas at Playa del Rey.

2 . . . That it may include in its rates to its consumers any and all expenses incurred in the operation of such facilities, including any moneys paid to Defense Plant Corporation under the contract.

The approval of the contract and its carrying out by the Southern California Gas Co. represents the culmination of a co-operative effort of various parties, including Southern California Gas Co., Defense Plant Corp., the Office of Petroleum Administrator, Union Oil Co., and Department of Natural Resources of California and the State Railroad Commission.

Early in 1942 it became apparent that because of the tremendously increased requirements of natural gas for war and other essential loads, the deliverability of gas into the Los Angeles metropolitan area would

have to be sharply increased, especially during periods of peak demand.

Steel was not available for new pipe lines at that time, which is one of the reasons which pointed to the desirability of a large underground storage near the load center that could be filled in the off-peak summer period and used in the winter season.

A geological and economic survey made by the State Railroad Commission showed Playa del Rey as having an estimated usable storage capacity of two billion cubic feet. In August, 1942, the CRC recommended that the appropriate federal agency, under war powers, acquire the storage area of about 240 acres.

The field was acquired by Defense Plant Corporation under condemnation proceedings in September, 1942. Southern California Gas Co., after constructing the necessary transmission and compression facilities, injected 1¾ billion cubic feet of gas in the late summer and fall of 1943. During the heating season of 1943-44 about three-quarter billion cubic feet were withdrawn to help meet the critical demands of this period, the hourly withdrawals averaging 2 million cubic feet and the daily withdrawal total approximately 25 million cubic feet.

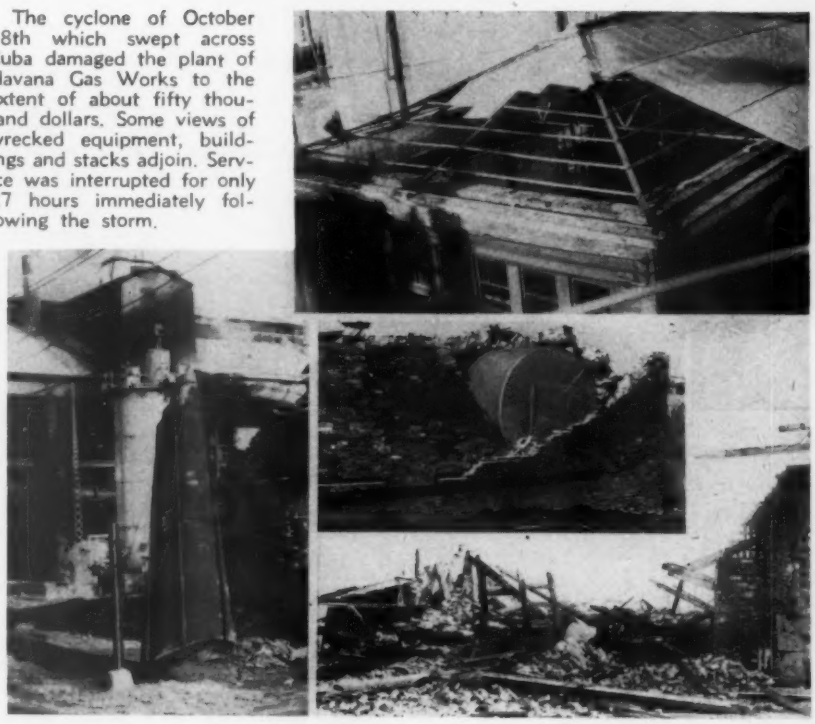
Data submitted by the Southern California Gas Co. in petitioning for approval of its contract with Defense Plant Corporation revealed that the first year's cycle of injection, storage and withdrawal indicated some gas migration. A new pressure migration study is now underway and the results, it was reported, appear to be favorable. A satisfactory accounting for increased gas produced from adjacent wells outside of the Defense Plant Corporation area is about to be consummated, the company reported to the CRC.

Injected gas during the summer and fall of 1944, the decision set forth, brings the total in storage there to about 2½ billion cubic feet and the 3 billion cubic feet storage limit, of which 2 billion is estimated to be readily available, may be realized this year.

In its order of approval of the contract, which was made effective on November 1, the CRC ruled that ". . . even if the project should ultimately prove to be a partial failure, the costs actually and necessarily incurred should be deemed as chargeable to utility service."

Damage Wrought At Havana Gas Works During Recent Cyclone

The cyclone of October 18th which swept across Cuba damaged the plant of Havana Gas Works to the extent of about fifty thousand dollars. Some views of wrecked equipment, buildings and stacks adjoin. Service was interrupted for only 27 hours immediately following the storm.



Richmond Va. Extention Calls for Additional Holder Capacity

The Department of Public Utilities of Richmond, Va., has drawn plans for approximately $500,000 in improvements to the city's gas distribution system, including the construction of gas holders in the Westhampton area.

The department's plans call for a large holder with a capacity of 2,000,000 to 3,000,000 cubic feet and one or more smaller pressure holders. The city's gas holders now have a capacity of 4,400,000 cubic feet and the new holders under consideration would increase the storage capacity by 2,500,000 cubic feet, thereby guaranteeing against any failure of service by flood or other cause.

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In hundreds of plants throughout the country, Connelly Iron Sponge has not only helped decrease costly sulphur corrosion, but has also materially improved gas purification and lowered the operating and maintenance costs.

If you have a problem in gas purification, it will pay you to consult Connelly. A thorough analysis of your problem and unbiased recommendations will be made without obligation.

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This Chart Gives Cubic Yards in Excavations

By
W. F. Schaphorst
Newark, N. J.

We often want to know the number of cubic yards in long, narrow, shallow excavations. The depth is then usually given in inches and the width and length in feet.

This chart will take care of excavations of that kind. The depth, Column A is given in inches, while the width, Column B, and length, Column D, are given in feet.

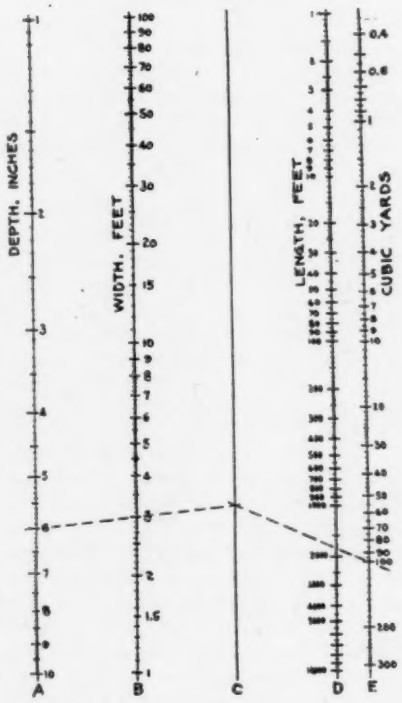
Run two zigzag lines across the chart as indicated by the dotted lines and the number of cubic yards is given in Column E.

For example, the dotted lines drawn across the chart show that if we have an excavation 6" deep (Column A) by 3 ft. wide, (Column B) and 1800 ft. long, (Column D) the number of cu. yards will be found to be exactly 100, in column E.

Run a straight line through the 6, Column A, and the 3 Column B and locate the intersection in Column C. Then from that point of intersection run through the 1800, Column D, with another straight line and the intersection with Column E gives the answer as 100 cubic yards.

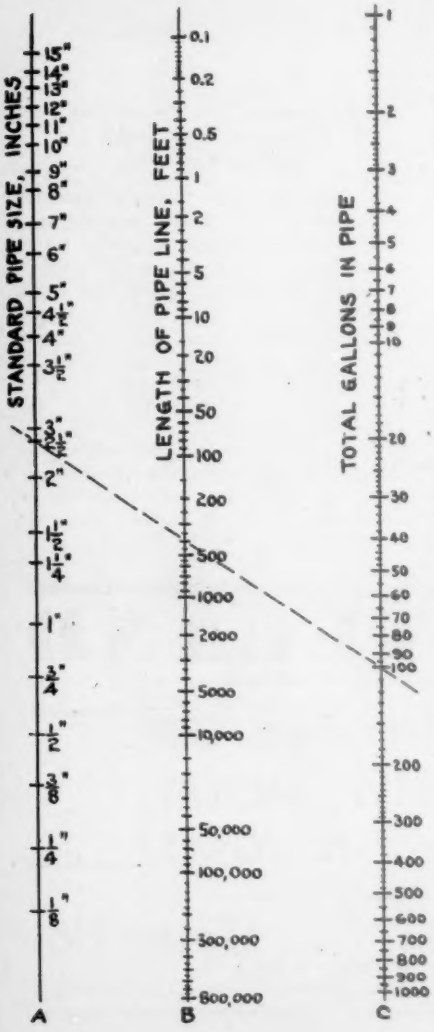
But that isn't all. The chart will also take care of deep excavations. Thus if the depth is 60 inches instead of 6 the same dotted line will give the answer as 1,000 cubic yards instead of 100. That is, if a digit is added in Column A a digit must also be added in Column E. Likewise if a digit is added in Column B a digit must be added in Column E.

Thus the same dotted line would show that for an excavation 60 inches deep by 3 feet wide and 1800 feet long the number of cubic yards would be 1,000. Or, if the depth is 6 inches, width 300 feet, and the length 1800 feet, you will have to add two digits in Column E because two digits were added to Column B thereby giving us 10,000 cubic yards in Column E as the correct answer.



This chart therefore will take care of almost any rectangular excavation and will give results that are surprisingly accurate.

Gallons in Any Standard Pipe



Every once in a while one wants to know the volume of a given length of pipe in gallons. This writer does not know of any table that gives such values and where volumes are to be found they are usually given in cubic feet. Besides, the range of a table is seldom great enough to cover all desired conditions.

Here is a chart that takes care of all of the standard pipe sizes from ⅛ inch to 15 inches in column A, and any length of pipe line from 0.1 foot to 800,000 feet in column B. Column C shows volumes from 1 to 1,000 gallons. The chart will therefore take care of most conditions.

To use the chart, run a straight line through the pipe size (column A) and the length of pipe line in column B and the intersection with column C immediately gives the total number of gallons in the pipe or pipe line.

For instance the dotted line drawn across this chart shows that if the pipe size is 2½ inches (column A) and the length of line is 400 feet (column B) the volume in the pipe, (column C), is 100 gallons.

Vice versa, if it is desired to know the length of pipe line required to hold a given number of gallons, or the size of pipe necessary, to hold a given number of gallons within certain limitations of length, the chart may also be applied. In other words knowing two factors in any two of the three columns, the unknown in the third column is quickly found.

In using a chart of this type, there are a number of good tricks to know, and here, for instance, is one of them:—To determine the volume in a ½" pipe one foot long, run a line through the ½", column A, and the 10,000 in column B. The intersection with column C says 160 gallons, but that, of course, is for a pipe line 10,000 ft. long. By merely pointing off four places to the left we have 0.016 gal. as the volume in a ½" pipe one foot long.

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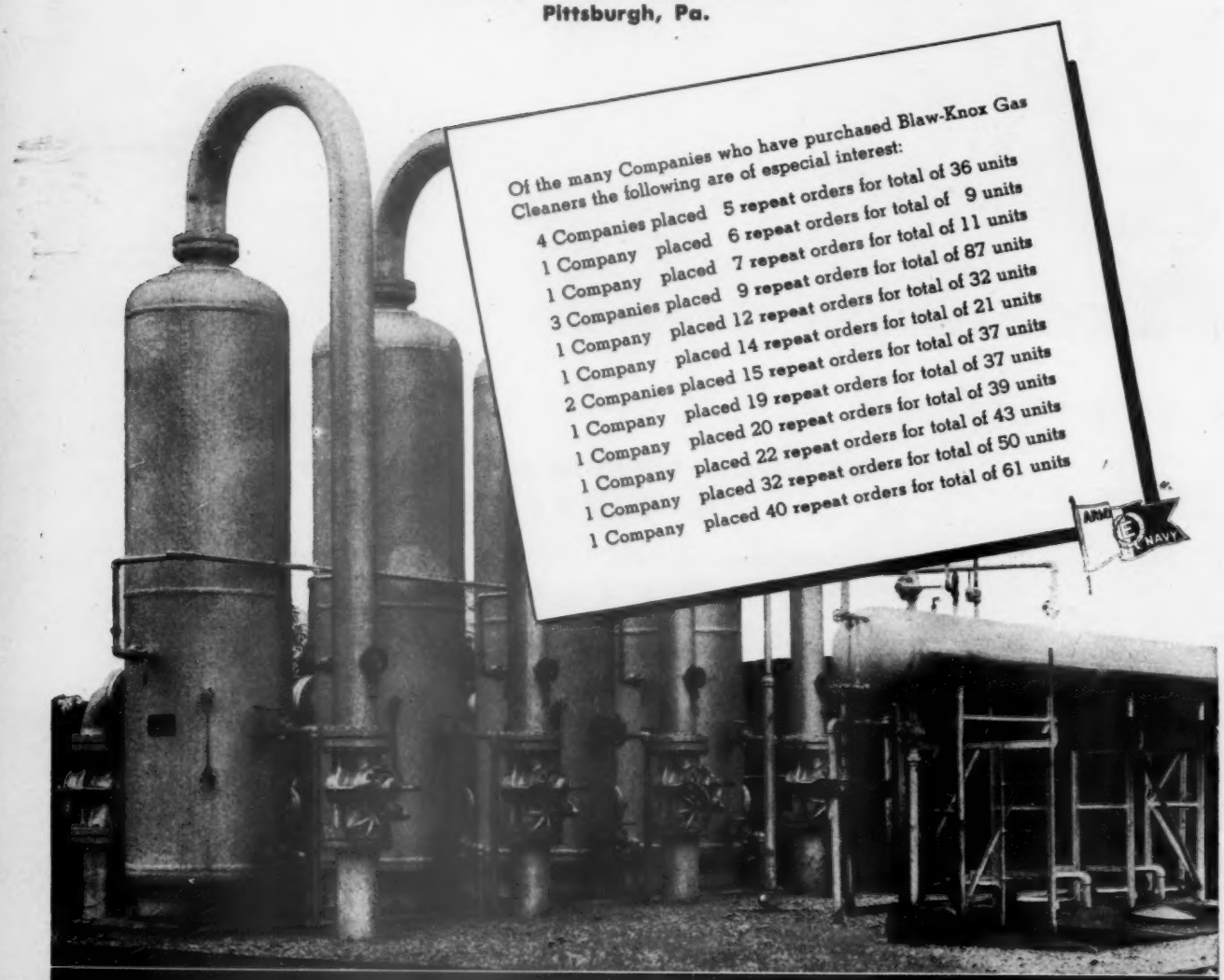
Of the many Companies who have purchased Blaw-Knox Gas Cleaners the following are of especial interest:
4 Companies placed 5 repeat orders for total of 36 units
1 Company placed 6 repeat orders for total of 9 units
1 Company placed 7 repeat orders for total of 11 units
3 Companies placed 9 repeat orders for total of 87 units
1 Company placed 12 repeat orders for total of 32 units
1 Company placed 14 repeat orders for total of 21 units
2 Companies placed 15 repeat orders for total of 37 units
1 Company placed 19 repeat orders for total of 39 units
1 Company placed 20 repeat orders for total of 43 units
1 Company placed 22 repeat orders for total of 50 units
1 Company placed 32 repeat orders for total of 61 units
ARMY NAVY

BLAW-KNOX GAS CLEANERS

RECENT COURT DECISIONS
Affecting Gas Utilities

How to Win Gas-Escape Damage Suits

By
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RECENTLY, the higher courts have rendered several unusually interesting decisions involving damage suits arising from escape of gas. In each of these modern decisions the higher courts have illustrated certain important points of law which gas company officials may, when necessity arises, use to win similar suits.

Many of these modern decisions reverse older law. In this article the most outstanding modern higher court decisions on this subject are reviewed for the purpose of assisting gas company officials and employes differentiate between modern and obsolete law, to avoid law suits and, also to assist, by reference to the cited modern decisions, in winning favorable verdicts in event of unavoiding suits.

Res Ipsa Loquitur

Generally speaking, a consumer who suffers injuries from inhaling escaped gas cannot recover damages from the gas company unless he proves that the gas escaped as a result of negligence of the gas company officials or employes. However, a modern higher court has held that if the injurious gas escaped from an appliance sold and installed by the gas company the consumer need only prove that escape would not ordinarily have occurred if due care had been used by the gas company employees, and that then the burden shifts to the company to show freedom from negligence.

For illustration, in Hanson v. City Light Company, 178 S. W. (2d) 804, reported February, 1944, it was shown that a consumer sued a gas company and sought recovery of damages for alleged injuries to her health said to have been caused by the carelessness and negligence of the gas company employes in the installation of a gas furnace in her home together with pipes and appliances connected thereto, and other gas appliances for the use of natural gas furnished by the gas company. Since the gas company failed to introduce testimony proving that its employes had *not* negligently installed the gas furnace and appliances, the higher court held the company liable for $1,750 damages, and said:

"The conclusion is that under the petition and evidence plaintiff (consumer) was entitled to rely upon presumptive negligence under the rule of res ipsa loquitur. There was substantial proof from which negligence could be found without resorting to conjecture . . . In the pending case defendant (gas company) not only installed and rearranged all the appliances and gas pipes that were put in use, but had complete supervision thereof, and the right of control for inspection. . . ."

Therefore, in cases of this nature, the gas company employes who installed the appliances should have at hand written notes and records which may be introduced during the trial to convince the jury that when the appliances and gas connections were finally inspected all gas leaks positively had been eliminated. Then, under these circumstances, the burden automatically shifts to the consumer who must *prove* that the gas company employes negligently installed the appliance. Failure of the consumer to prove these facts entitled the gas company to a favorable verdict.

Appliances Connected with Old Pipes

Another important rule of law laid down by a recent higher court is that if gas company employes install appliances to old pipes owned and controlled by the property owner, the company may avoid liability for subsequent injuries caused by escape of gas if the property owner fails to positively prove that the company employes were negligent.

For instance, in the interesting case of Franklin v. Skelly Oil Company, 141 Fed. Rep. (2d) 568, reported May, 1944, a property owner sued a company for damages caused by an explosion which occurred in his home resulting in the complete destruction of the residence and its contents. The property owner contended that the explosion occurred because the company had negligently installed a butane gas system in the residence, causing the explosion and fire. The property owner contended further that the company had connected the butane gas with the pipes and connections which had been previously installed as a natural gas system for domestic purposes. He alleged that the pipes and fittings, originally installed for a natural gas system, were sealed or cemented by a material or compound of white lead and oil, containing an organic oil base, which when subjected to a liquefied gas would dissolve thereby permitting the gas to escape through any openings in the threaded pipe.

The higher court refused to hold the company liable saying:

"Conceding without deciding that the connections on the pipes previously used for the natural gas system were sealed or cemented by a substance or compound containing a soluble base unsuited and unsafe for butane gas, yet it remains to be determined whether the explosion was caused by a leak from one of the connections for which Skelly (company) is responsible. The mere choice of probabilities does not constitute evidence, but creates only conjecture and surmise on which a verdict of a jury cannot stand."

Therefore, according to the law established by this decision any and all appliances installed by a gas company and connected with pipes, or the like, *already* in *the* building keeps the gas company at the *legal advantage* of requiring the properly owner to positively prove that the explosion was caused by negligence of the gas company employes.

Also, see Pennsylvania v. Chamberlain, 288 U. S. 333; Lowden v. Friddle, 189 Okl. 415; Parker v. Gulf, 6 Cir., 80 F. (2d) 795; Mark C. Walker, 6 Cir., 124 F. (2d) 420; and Troutman v. Mutual, 6 Cir., 125 F. (2d) 769.

Owner Makes Installation

On the other hand, it is well to explain that the modern law is different with respect to escape of gas from equipment which was *not* installed by the gas company.

For illustration, in Brown v. St. Louis County Gas Company, Mo. App. 131 S. W. (2d) 354, it was shown that a property owner sued a gas company to recover damages by reason of freezing and bursting of pipes and radiators of a hot water heating system while the property owner was absent from home. The damage occurred when the supply of gas to the burner in the basement became entirely shut off due to the fact that the mechanical equipment, which controlled the intake of gas, failed to function as it was designed to do. The property owner testified that a gas company employe had advised him not to drain the water system to prevent freezing because one of the company's employes would adjust the apparatus necessary to maintain a temperature of fifty degrees Fahrenheit in the house while the family was away. The proposal was accepted and certain adjustments were made. There was evidence that during the absence of the property owner the mechanical equipment mentioned permitted the flow of gas for several days, but finally failed to function and as a result prevented a sufficient supply of gas to the heater. There was a freeze-up and heavy damage resulted.

The property owner did not prove that the gas company employes furnished or installed the mechanical equipment, or had any responsibility whatever for its proper functioning, or that it had any notice that such equipment would not function properly. Moreover, the equipment, the gas pipes, and all other appliances in the house were installed by and were at all times under the complete control of the owner. Therefore, the higher court held the gas company not liable in damages to the property owner. Also, see Gibbs v. General Motors Corp., 350 Mo. 431; Taylor v. Missouri Natural Gas Company, 67 S. W. (2d) 107; Streck v. St. Louis Gas Company, 58 S. W. (2d) 487; Nomath Hotel Company v. Kansas City Gas Company, 223 S. W. 975; Bonner v. Texas Company, 5 Cir., 89 F. (2d) 291; and Schaum v. Equitable Gas Light Company, 44 N.Y.S. 284.

Property Owner Held Liable

Obviously, in all legal controversies involving escape of gas negligence of either the gas company employes or the property owner must have resulted in the injury. In some instances the blame may lie between the gas company employes, the property owner, and the latter's tenant. In either event the gas company may avoid liability by submission of testimony which will convince the jury that the actual injury resulted from negligence of the property owner.

For example, in Allen v. Temple, 179 S. W. (2d) 116, reported July, 1944, the court records disclose that a property owner entered into a written lease with the United States Government, whereby the latter leased the first floor and basement of a building, including the ladies' parlor, the use of two rest rooms on the first floor, and the toilet in the basement. The lease provided that the property owner should maintain the premises in good repair and tenantable condition during the continuance of the lease.

The building was supplied by natural gas for heating. The gas was conveyed through a number of pipes to various parts of the building where heat was required. One of these pipes, which originally had been a water pipe, extended into the ladies' rest room to the wash basin, where it was attached to what had formerly been a hot water faucet. There was a water stop-and-waste valve on this pipe near the point where it went through the ceiling into the ladies' rest room.

One day the gas company received a call from a government employe reporting a gas leak at the building. The call was reported to Mr. Smith, the superintendent of the gas company, who sent a man named McKinney to see about the leak. Later Mr. McKinney returned, and reported to Mr. Smith that there was a leak in the basement around the above mentioned stop-and-waste cock, and that he had fixed it or stopped the leak.

Exactly one week later a government employe passed through the main office and then into the rest room which contained the wash basin. She shut the door and struck a match to light a cigarette. A terrific explosion of gas immediately followed. The employe was severely injured and sued to recover heavy damages.

From these facts it is quite apparent that the gas company is liable if the explosion was caused by negligence of the gas company employe, McKinney, who made the repairs on the stop-and-waste valve. If, however, the negligence could be traced to either the property owner or a government employe, who may have tampered with the stop-and-waste valve after McKinney had reported to Smith, the gas company superintendent, that he had fixed the leak, the gas company is relieved from liability.

During a subsequent investigation testimony was given that after McKinney had stopped the leak the property owner had hired a plumber to check into it and repair the stop-and-waste valve or the leak around it. Further testimony revealed that the stop-and-waste valve was *not* on the pipe in question on the day of the explosion. It had been removed after McKinney's visit to the premises and a short piece of pipe had been inserted in its place. The effect of its removal was to permit an uninterrupted flow of gas through the pipe to the hot water faucet in the ladies' rest room.

This testimony was presented to the jury. The inference was, of course, that since the property owner had employed a plumber to do work in the building, including repair of the stop-and-waste valve, the latter had removed the valve and inserted the short piece of pipe. However, no direct testimony was given to prove these facts, and the plumber was not available for testimony at the trial.

It is interesting to observe that the jury decided that the plumber, employed by the property owner had negligently inserted the short piece of pipe in place of the valve, thus permitting the gas to flow directly through the faucet and into the ladies' rest room.

It is important to know that the jury relieved the gas company from liability and held the property owner fully liable in damages for the injuries sustained by the government employe.

The property owner appealed to the higher court on the contention that there was no substantial evidence to support the verdict, and that the verdict can only be had by building inference upon inference, which is not permissible.

(Concluded on page 54)

For a Refractory that Lasts Longer

CRYSTOLON BRICK

by NORTON

Time is the fundamental measure of a practical refractory.

Long life is the practical result of using CRYSTOLON (silicon carbide) brick.

That is the reason for the ever increasing use of CRYSTOLON brick in generators of water gas sets.

The long life of CRYSTOLON brick results from their high refractoriness, chemical stability and their dense hard surface which resists slag penetration and reduces clinker adherence.

NORTON COMPANY WORCESTER 6, MASSACHUSETTS

SEEN BILL LATELY?

Bill is a pretty important guy. He and the boys, like him, in appliance, furniture, hardware and department stores put out 70 per cent of all Gas Ranges sold in 1941.

If you want Bill's help later on—if you want him to sell load-building, load-retaining quality Gas Ranges, you had better start talking to Bill soon.

Your Bill can make real money with Gas Ranges bearing the famous "CP"* seal of approval. "CP" is the most fundamental and profitable idea in major appliance history. And a 6 million dollar advertising program is making it more profitable every day.

Here's a certified buying guide every woman is looking for. And with 2 out of every 3 women owning an obsolete stove, Bill has a mass market to tell the "CP" story to.

Bill is going to be a good post-war partner for someone. Who that someone is, depends on you.

THE SOUNDEST IDEA IN MAJOR APPLIANCE HISTORY

These 20 Manufacturers Will Make Matchless Gas Ranges Bearing the "CP" Seal

A-B STOVES, INC.
AMERICAN STOVE CO.
CALORIC GAS STOVE WORKS
CRIBBEN & SEXTON CO.
DETROIT-MICHIGAN STOVE CO.
THE ESTATE STOVE CO.
GLENWOOD RANGE CO.
JAMES GRAHAM MFG. CO.
GRAND HOME APPLIANCE CO.
HARDWICK STOVE CO.
A. J. LINDEMANN & HOVERSON CO.
O'KEEFE & MERRITT CO.
ROBERTS & MANDER STOVE CO.
GEO. D. ROPER CORP.
STANDARD GAS EQUIPM'T CORP.
THE TAPPAN STOVE CO.
WESTERN STOVE CO., INC.

In Canada

CLARE BROS. & CO., LTD.
GURNEY FOUNDRY CO., LTD.
MOFFATS, LTD.

**Trade-mark of the Association of Gas Appliance and Equipment Manufacturers, 60 East 42 Street, New York 17, N. Y.*

Smart, Modern Kitchens Featured in New National Gas Advertisements

STARTING in January, 1945 and continuing for the next six months, the Association's Committee on National Advertising will sponsor a new series of consumer advertisements developed in accordance with recommendations of the Post-War Planning Committee.

Specifically, the new advertising program will consist of two closely integrated campaigns. One will feature the latest developments and trends in the fast-developing art of kitchen planning. In this series the spotlight will be trained on the three essentials of a strictly modern post-war kitchen—a certified performance gas range, a gas refrigerator and ample hot water automatically supplied by gas heat. Insertions will occupy full pages, some in color and some in black and white.

The second campaign is specially designed to give separate featuring and stronger promotion to gas house heating and year-round air conditioning than is possible in the kitchen series. Half pages in black and white will be used. With one campaign supplementing the other, all five domestic utilizations of gas fuel will be given a strong play.

The decision to depart from the current series of two-color, full-page advertisements featuring "the house that gas runs" came as the result of several weeks given over to an intensive study and analysis of various advertising themes, their timing and their promotional possibilities, together with increasing gas industry sentiment for the package-planned or coordinated gas kitchen.

Investigation also developed the fact that beautiful, glamorous gas kitchens are in growing demand among the women of America. Furthermore, it was agreed that the gas industry has a superior cooking appliance which, when properly installed, can excel all others in support of the "clean, cool, odorless kitchen."

With this background information at its disposal, the Sub-Committee on Approval of Domestic Gas Copy met at Cleveland, September 20 and 21, and went thoroughly into every phase of the coordinated gas kitchen project as well as related activities. Reports were received from both technical and promotional experts and from chairmen of several special committees on the status of technical development of the ventilated kitchen, the coordinated kitchen without the ventilating feature and other pertinent matters.

With all the "evidence" in, the Committee spent the second day in executive session studying and analyzing four separate advertising campaigns presented by the agency, McCann-Erickson, Inc., of New York.

These four campaigns demonstrated the several ways in which either the coordinated gas kitchen, the ventilated gas kitchen, certified performance gas ranges or gas industry institutional objectives could be handled effectively in national advertising.

After discussing each campaign the Committee was of the opinion that since the coordinated gas kitchen project has reached an advanced stage of development and its promotion is an established commitment of the gas utility industry, the bulk of the national advertising scheduled for the first six months of 1945 should carry this story to the American public.

It was also felt that in addition to the enthusiastic reception given to the coordinated gas kitchen idea by a majority of gas utility companies, gas appliance manufacturers, makers of kitchen cabinets and other related items, there is a mounting flood of evidence that millions of Americans regard the kitchen as the most important room in their post-war new building and remodeling plans.

It is contemplated that enlarged reproductions of the kitchen illustrations with accompanying factual explanations will be offered to teachers for classroom use. It is also thought likely that gas companies will find these enlarged reproductions of value in answering questions of customers relating to trends in kitchen modernization.

A full schedule of advertising will also run in Architectural Forum and American Builder & Building Age, commencing with the February, 1945 issues of those magazines. This advertising, at least in its early stages, will announce the availability of the Association's "Architects Manual of Modern Gas Service" and will contain basic material from that Manual.

Farther on in the text, the New Freedom gas kitchen is not promised until after Victory when Mrs. America can have her certified performance gas range, her new silent gas refrigerator and her new gas water heater.

The other campaign, consisting of half-pages in black and white, has unique characteristics of considerable selling power. These ads, which cover all five uses of gas, are in the form of a personal column of advice on the home—chummy chats to women, discussing homemaking problems and the ways gas can help solve them. The column will be signed "Margaret Mallaby, American Gas Association Reporter."

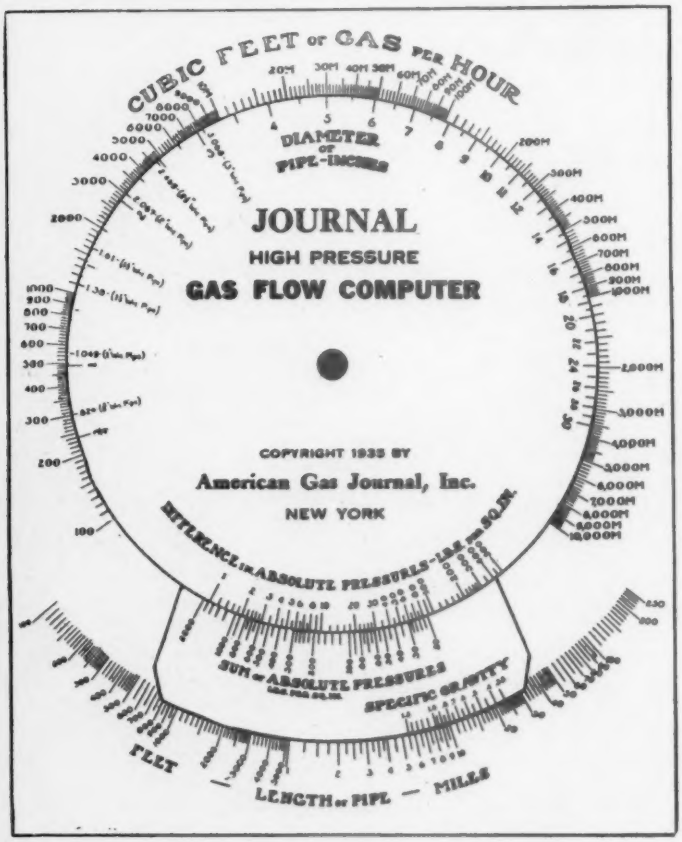
This innovation in advertising technique will tell interesting and convincing facts about the many advantages of gas as well as developments in gas appliances to women in language women like—the intimate, editorial style of a woman writer. They begin with: January Better Homes & Gardens and February American Home and Women's Home Companion.

To answer inquiries created by the national advertising and to back up the A.G.A. national story, it is realized that a booklet is needed as a highly necessary step in a complete campaign of this nature. Preparations are now being made for the production of such a booklet which will incorporate colored illustrations of a number of strictly modern gas kitchens, with text containing helpful suggestions on the planning of new kitchens.

Obviously it will take considerable time before a booklet of the nature desired can be printed and distributed. In the meantime, therefore, it has been suggested that some of the manufacturers of kitchen cabinets might have material available which would serve the purpose of answering inquiries received from persons who read the national advertisements. It has been suggested that the gas utilities be provided with quantity lots of such literature by the cabinet manufacturers, but final arrangement has yet to be made.

As has been the practice of the Committee on National Advertising ever since the start of the national advertising movement nine years ago, local gas utilities will be offered newspaper mats of the advertisements. In the new campaign these will consist of reproductions of kitchen advertisements. As the new program develops, it is quite possible that other effective local tie-in features will be offered.

"Journal" Gas Flow Computers



These Improved Gas Flow Computers are available in durable celluloid, encased in a convenient leatherette cover with complete instructions.

Actual Size 6¼ x 7½

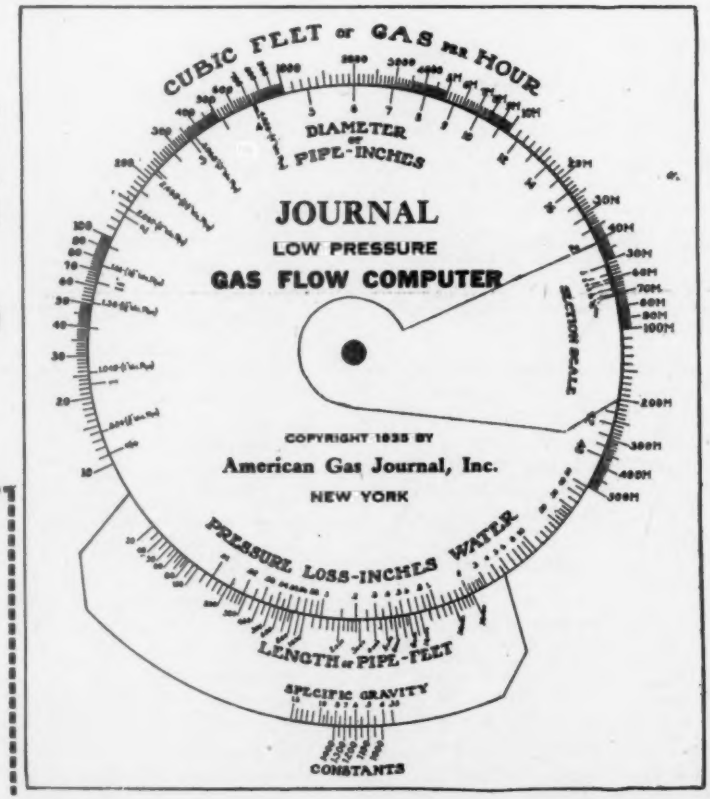
High Pressure Computer Range:

Cu. Ft. of Gas Per Hour—100-10,000 M
Diameter of Pipe Inches ¾-30
Difference in Absolute Pressure—Lbs. per sq. in. 1-500
Sum of Absolute Pressures—Lbs. per sq. in. 2000-20
Specific Gravity 1.5-.35
Length of Pipe—Feet 100-5000
Length of Pipe—Miles 1-250

Low Pressure Computer Range:

Cu. Ft. of Gas Per Hour—10 to 500 M
Pipe Diameter ¾" to 48" (including standard and actual weight up to 4")
Pressure Loss Inches .01-10.
Length of Pipe—Feet 30-30,000
Specific Gravity 1.5-.35
Constants 1400-1000

Price $3.50 Each. Postage Prepaid



AMERICAN GAS JOURNAL
53 Park Place, New York 7, N. Y.

Please enter our order for Computers as follows at $3.50 each, postage prepaid

....HIGH Pressure Computer

....LOW Pressure Computer

NAME .....

ADDRESS .....

Gas Pipeline Flow Calculations

By

H. R. Ross

Senior Utilities Engineer
California Railroad Commission

GAS PIPELINES are the heart of any gas company, whether it is purely a distributing agency, purely a transmitting agency, or a combination of the two. Natural gas is first carried from the original source (the outlet of a gasoline absorption plant or a dry gas well) in gas-gathering or collecting lines. These gathering lines deliver their gas to transmission lines, which generally are fed from a number of gathering lines, and the transmission lines transport the gas to the vicinity in which the gas is to be distributed for consumption, at which point the gas is delivered to a network of pipes termed distribution lines. These distribution lines carry the gas to the service connections of ultimate customers, whence service lines conduct the gas to the meter, and from that point house piping or house lines complete the delivery of gas to the ultimate point of use.

To bring out the relation of metering to the carrying of gas from its source to the point of ultimate use, it can be said in general that the volumes are metered at the original source and at the junctions of each of the types of lines as previously classified, except for the junction of distribution and service lines. In addition, the volume of gas is usually measured immediately before and after undergoing compression, wherever that compression may take place. The measurement at all points prior to the ultimate, or customer's, meter is usually performed by inferential meters of the orifice type due to the large volumes involved and the small pressure drop permissible, and also due to the prohibitive cost of positive displacement meters in such applications, but the ultimate meter is usually of the positive displacement type. Where the ultimate use involves large volumes, frequently orifice meters are used.

The theory and formulas to be presented apply universally to all gas pipeline flow, regardless of the particular type of line, as above classified by function; however, the calculations emphasized relate primarily to fairly high pressure and long distance lines, commonly called transmission lines.

By the use of the principle of conservation of energy, the following general formula for the flow of gases through pipelines has been developed:

$$Q = K\frac{T_o}{P_o}\sqrt{\frac{(P_1^2-P_2^2)D^5}{GTLf}}$$

wherein Q = cubic feet per unit of time at base temperature and pressure
K = constant depending upon units used
T_o = temperature base, °F abs.
P_o = pressure base, psi abs.
P_1 = initial pressure, psi abs.
P_2 = terminal pressure, psi abs.
D = inside diameter of pipe, inches
G = specific gravity of gas with respect to air
T = flowing temperature, °F abs.
L = length of pipeline, feet or miles
f = friction factor, no units (empirically determined)

The units indicated above are those generally used in this work, but any other units may be used equally well if the constant is correspondingly adjusted. The temperature and pressure bases as well as the flowing temperature may be included in the constant for a more specialized modification of the general formula.

$$Q = K_1\sqrt{\frac{(P_1^2-P_2^2)D^5}{GLf}}$$

There are many flow formulas, but they are all modifications of the above theoretically derived equations, the differences being in the friction factor. Such differences in friction factor between flow formulas may cause as much as 25% variation in calculated flow in certain pipe sizes.

Each of the earlier flow formulas, expressing friction factor as a relatively simple function (such as the Weymouth and Spitzglass formulas where the friction factor is expressed directly as a function of diameter only), applied quite well to the flow conditions under which the friction factors were evaluated, but generally could not be applied satisfactorily over a wide range of flow conditions. It was only when the friction factor came to be expressed in terms of line diameter, velocity, density and viscosity of the gas that results of most experimenters began to agree very closely. The expression involving these items, which is dimensionless, is commonly referred to as Reynolds' Criterion, or Reynolds' Number.

Reynolds' Number was arrived at from experiments on the flow of fluids, by observing the factors which appeared to determine whether flow would be streamline or turbulent. The following expresses the relation of the various factors affecting the characteristics of flow:

$$\text{Reynolds' Number } R = \frac{dv}{\frac{\mu}{\rho}} = \frac{dv\rho}{\mu}$$

wherein d = inside diameter of pipe, feet
v = flowing velocity, feet per second
ρ = flowing density, pounds per cubic foot
μ = absolute viscosity, pounds per second foot

This Reynolds' Number subsequently was used as a means of expressing friction in gas pipeline flow formulas, and experimentation has substantiated that it is admirably suited to this purpose.

Many experimenters have proposed formulas expressing friction in terms of Reynolds' Number, many of them offering a number of formulas for different ranges of pipe size and type and condition of the inside pipe surface. The work of Kemler and Pigott along this line has been widely accepted as according with experience, and in graphical form can be presented as a "family" of curves. Determining the friction factor from such a set of formulas or curves is obviously more arduous than would

be the case if one formula or curve could be used, and in order to simplify such determination Shebeko has proposed a single formula which lies approximately midway between the extremes of the curves of Kemler and Piggott and is considered representative of average pipe conditions in the West. Shebeko's formula yields satisfactory results except where extreme accuracy is required.

The following two adaptations of the Shebeko friction factor to the general flow formula are for the cases where length is expressed in feet and in miles, respectively:

$$Q = 181.6 \sqrt{\frac{(P_1^2 - P_2^2)D^5}{GLf}}$$

where L = length in feet

$$Q = 2.50 \sqrt{\frac{(P_1^2 - P_2^2)D^5}{GLf}}$$

where L = length in miles

The values of f in terms of Reynolds' Number (R) for respectively turbulent (R greater than 4000) and viscous (R less than 4000) flow are as follows:

$$f_{turbulent} = .0351 \left[\frac{1}{R}\right]^{.152}$$

$$f_{viscous} = \frac{16}{R}$$

Reynolds' Number for essentially all transmission line flow exceeds 4000 and for that reason the value of f used in the following discussion will be for turbulent flow only.

Since Reynolds' Number is made up of factors which are not generally used or thought of in practical gas work, it simplifies calculation of the value of f very materially to express R in terms of more commonly used factors. Mr. W. C. Mosteller has expressed R as a function of the ratio $\frac{Q}{D}$ by the expedient of establishing as constant the specific gravity, temperature and viscosity, providing for subsequent correction of results to values at variance with those assumed as constant. Mosteller obtains $R = 33.42 \frac{Q}{D}$ for the following assumptions:

Flowing temperature —T_f = 520°F abs.
Specific gravity —G = .700
Absolute viscosity —μ = .0000068 lbs./sec. ft.

Substituting this value of R in Shebeko's formula for friction factor for turbulent flow:

$$f = .0351 \left[\frac{D}{33.42\,Q}\right]^{.152}$$

or, for convenience in application to the flow formula:

$$\sqrt{\frac{1}{f}} = \frac{1}{\sqrt{.0351}}\left[33.42\frac{Q}{D}\right]^{.076}$$

The plot of this relationship is shown on Chart 1. Chart 2 presents curves for various ordinarily-encountered temperatures plotted against specific gravity and specific gravity-temperature-viscosity correction factor, permitting correction for actual values at variance with those assumed in Chart 1.

Calculating flow (Q) or diameter (D) by the use of the resulting flow formula introduces what seems to be

CHART No. 1

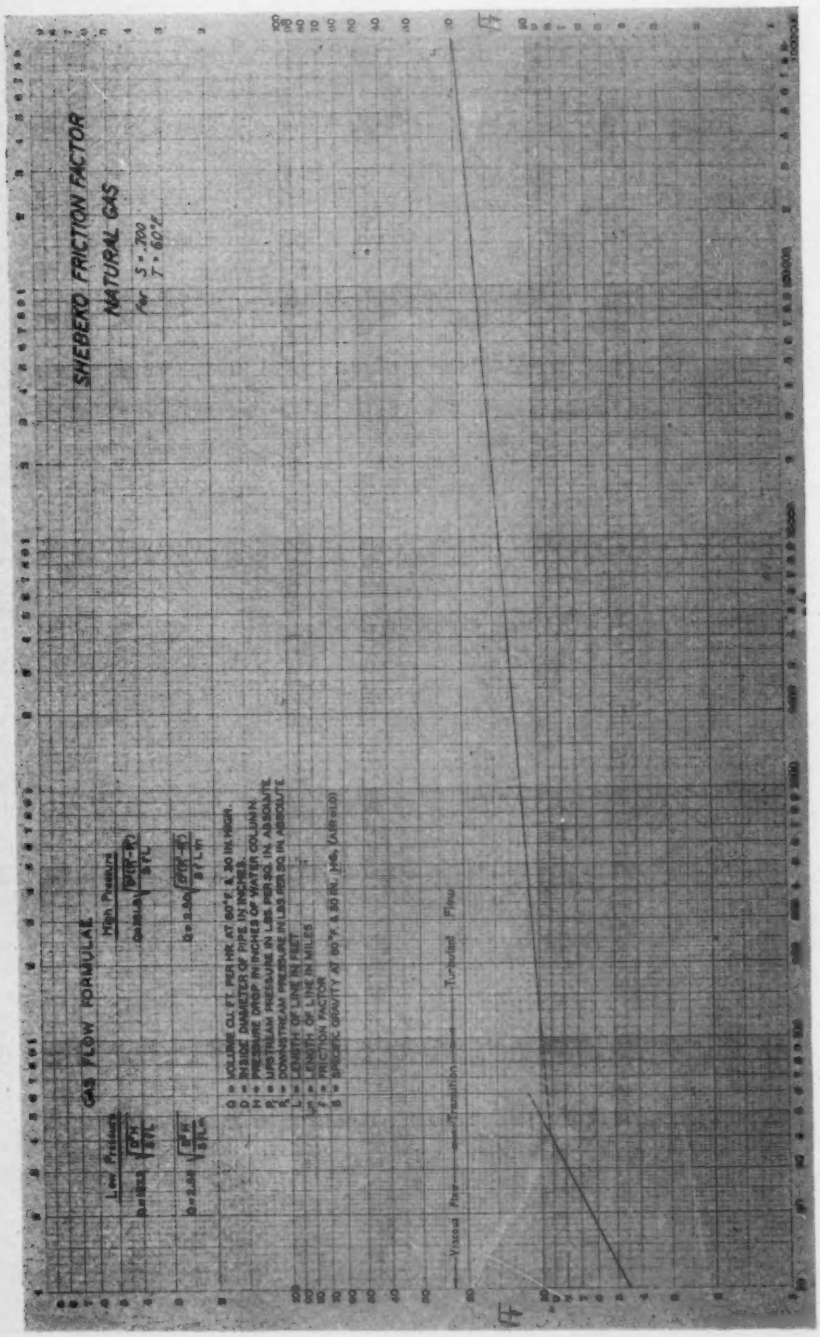
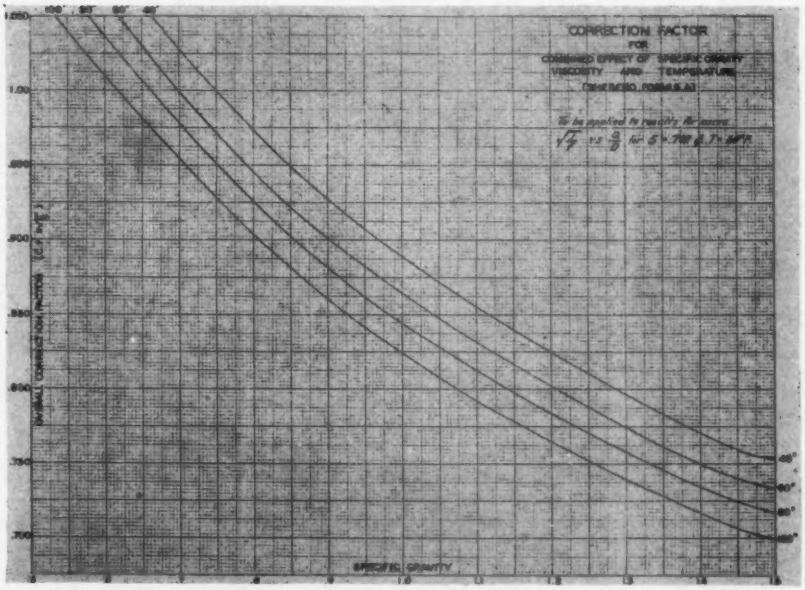


CHART No. 2



a paradox in that the answer must be known in order to arrive at the answer. However, the value of $\sqrt{\frac{1}{f}}$ varies so slightly relative to Q or D that two or three (at the most) successive approximations will give satisfactory results. There are methods of avoiding this solution by successive approximation, but they further complicate the determination and are recommended only where great numbers of calculations are being made.

To obtain Q (or D), the procedure in the case of a uniform-diameter series pipe line is to guess at D (or Q), determine $\sqrt{\frac{1}{f}}$ from Chart 1; then substitute the first-approximated value of Q (or D) to make a second approximation of $\sqrt{\frac{1}{f}}$ and Q (or D). Three approximations (after the first guess) will be sufficient. Values of factors other than Q or D can be determined directly without successive approximation from the formula and curves. The correction from Chart 2 (if required) is then applied to the preliminary result as a coefficient of $\sqrt{\frac{1}{f}}$.

Very frequently it is necessary to calculate the flow in a series pipe line made up of different-sized pipe. If the problem were to find the total pressure drop in such a line, given all the necessary factors including initial pressure, the pressure drop could be calculated for each successive section of different-sized pipe, and the terminal pressure thus arrived at. Solving in this manner for pressure drop although laborious, would permit direct solution of the formula for each successive section; however, if the problem were to find the flow in such a line, given the initial and terminal pressures and other necessary factors, the problem would become vastly more protracted as it would then be necessary to cut and try various Q's until one was determined which would give the desired terminal pressure. The magnitude of such a task can be appreciated particularly when it is realized that for each trial, a separate friction factor for each different-sized section would be required. For both of these types of problems, a very useful device is to convert all the lengths of different-sized pipe to the *equivalent length* of a single size, from which point the problem can be solved as a simple continuous single-sized line.

Any line is the *equivalent* of another when the same difference of the squares of absolute pressure $(P_1^2 - P_2^2)$ impels the same flow (Q) through each of them. Thus it can be seen that a greater length of a larger diameter line would be the equivalent in carrying capacity of a shorter smaller-diameter line. Using the preceding definition of equivalence in the general flow formula and identifying the actual line by the subscript "a" and the equivalent line by the subscript "e," by collecting to one side all the factors which, by the definition given, will be the same for both lines, it follows that the values on the other side of each of these equations must be equal to each other. Using this equality the following equivalence formulas have been derived for complex series lines:

$$L_e = \left[\frac{D_e}{D_a}\right]^{4.848} L_a, \text{ or}$$

$$D_e = \left[\frac{L_e}{L_a}\right]^{.2063} D_a$$

It is also possible to convert two or more parallel lines to an equivalent length of single line. With parallel lines, the initial and terminal pressures are common to each of the lines. Using any value for $(P_1^2 - P_2^2)$, calculate the flow through each of the branches, add the resulting flows together, then solve for length (or diameter) of the equivalent line, that is, one which will carry the combined flow with the same value of $(P_1^2 - P_2^2)$. This method of calculation can also be applied to a complex series line, that is, for each different size of line in the series, an equivalent length can be calculated for an assumed equivalent diameter by determining the equivalent dimensions (length and diameter) which will yield the same flow for the same value of $(P_1^2 - P_2^2)$, identical results being obtained regardless of the magnitude of the value of $(P_1^2 - P_2^2)$ selected.

The theoretical flow formulas discussed thus far have been based upon the assumption that flowing gases conform to Boyle's Law, which is not the case with actual gases. This deviation from Boyle's Law introduces a successively more appreciable error as higher pressures are reached. In orifice meter work it is necessary to know only the downstream pressure, temperature and gravity to obtain the proper factor to apply, since the pressure is essentially constant, but in the case of pipe line flow theoretically a different factor would have to be applied for each of an infinite number of different pressures. It has been shown by Biddison that the effective deviation factor for such a line as a whole is the factor corresponding to the mean effective pressure P_m (*not* the mean of initial and terminal pressures) on the flowing line.

P_m is obtained on the theory that, in a constant-sized line, the value of $(P_1^2 - P_2^2)$ per unit of length is the

same from one end of the line to the other. Knowing that the flow at any cross-section along the line is the same as at any other cross-section, an expression for an intermediate pressure P at an intermediate point L can be obtained in terms of P_1, P_2, L and L_2 ($L_1 = 0$) as follows:

$$\frac{P_1^2 - P^2}{L} = \frac{P_1^2 - P_2^2}{L_2};$$

$$P_1^2 - P^2 = (P_1^2 - P_2^2)\frac{L}{L_2}, \text{ or}$$

$$P^2 = P_1^2 - (P_1^2 - P_2^2)\frac{L}{L_2}, \text{ or}$$

$$P = \sqrt{P_1^2 - (P_1^2 - P_2^2)\frac{L}{L_2}}$$

Integrating the area under the curve (of falling pressures) represented by this equation, and dividing this area by the over-all length of line L_2, we have

$$P_m = \tfrac{2}{3}\left[\frac{P_1^3 - P_2^3}{P_1^2 - P_2^2}\right]$$

$$= \tfrac{2}{3}\left[P_1 + \frac{P_2^2}{P_1 + P_2}\right]$$

which is the mean effective pressure on the line.

The "deviation" or correction for deviation applicable to volume is expressed symbolically as "Y." In C.N.G.A. Bulletin TS-402 the deviation factor (F_{PV}) is in reality the square root of "Y," or $\sqrt{Y}$. Applying the deviation "Y" to the basic orifice meter flow formula

$$Q = K\sqrt{\frac{hP}{GT}}, \text{ we arrive at } Q$$

$$= YK\sqrt{\frac{hP}{YGT}}, \text{ or}$$

$$Q = \sqrt{Y}\,K\sqrt{\frac{hP}{GT}},$$

or $Q = F_{PV}\,K\dfrac{hP}{GT}$ from which it is seen that deviation affects not only the volume or flow but also the specific gravity of the flowing gas; hence the application of $\sqrt{Y}$ or F_{PV} to the uncorrected results. Similarly in the pipe line flow basic formula

$$Q = K\sqrt{\frac{(P_1^2 - P_2^2)D^5}{GLf}}$$

the deviation affects both the volume and the specific gravity of the flowing gas, so the same over-all correction as used for orifice meter flow can be used for pipe line flow as follows:

$$Q = \sqrt{Y}\,K\sqrt{\frac{(P_1^2 - P_2^2)D^5}{GLf}}, \text{ or}$$

$$Q = F_{PV}\,K\sqrt{\frac{(P_1^2 - P_2^2)D^5}{GLf}}$$

As stated above, the deviation factor (F_{PV}) to be applied to uncorrected flow formula results is that corresponding to the mean effective pressure (P_m) on the pipe line.

Presented at Nov. 16, 1944 meeting of Southern California Meter Association at Rio Hondo Country Club, Downey, Calif.

Season's Greetings

May the coming year bring total victory with a true and just peace to the peoples of the world.

GPM
IRON HYDROXIDE

GAS PURIFYING MATERIALS COMPANY INC.

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Lincoln Electric Co. Announces Appointments in District Personnel

Paul James has been appointed district manager of its Syracuse office, The Lincoln Electric Company, Cleveland, Ohio, announces.

The new district manager came to the Syracuse office from Rochester, where he held a similar position with the arc welding company.

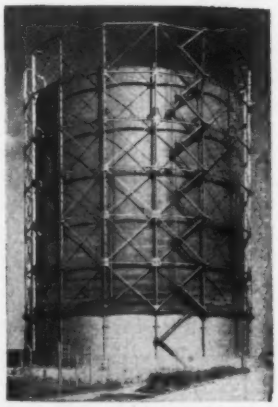
James was graduated from Ohio State University in 1935 with a degree in electrical engineering and joined Lincoln Electric immediately afterwards. He is a member of the American Society for Metals and the American Welding Society.

E. L. Smith has been appointed district manager of the company's Rochester office to take the place of Mr. James.

Mr. Smith joined The Lincoln Electric Company immediately after he was graduated from Cornell University in 1936 with the degree of Electrical Engineer. He gained experience at the Cleveland plant the following year and has been a resident of Rochester since.

The company also has transferred George S. Stevens from the factory at Cleveland, to Charlotte, North Carolina, as field representative and engineer.

Prior to his two years' experience at The Lincoln Electric Company, Mr. Stevens was a welder with the Carnegie-Illinois Steel Corporation. He attended De Paul University in Chicago and Beloit University at Beloit, Wisconsin. His address at Charlotte is 125 Brevard Court.



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War Production Board

and Other Administrative Orders

F.P.C.—Depreciation

In an address before the annual meeting of the National Association of Railroad and Utilities Commissioners in Omaha, Nov. 14, Nelson Lee Smith, Chairman of the NARUC Committee on Depreciation and member of the Federal Power Commission, urged acceptance by the NARUC of his Committee's 1943 and 1944 Reports on Depreciation.

In urging acceptance of the reports, Commissioner Smith said:

"In the opinion of the Committee, and in the judgment of many others who have reviewed it, the 1944 Report meets squarely and fairly the criticisms which have been directed at certain features of the 1943 Report, to which it serves as a supplement, clarifying points which, upon further consideration of the comments and suggestions received, appeared to require amplification or further explanation. Taken, together, the two reports should afford a helpful body of principles to guide the respective commissions in dealing with the problem of depreciation, as they encounter it in particular cases, —always with due regard, to quote the 1943 Report, 'to what is equitable and feasible under the circumstances' and 'in accordance with the facts in each case'."

Says Principles of Equity Should Control Depreciation

In discussing the two reports, Commissioner Smith continued:

"Taking the two reports together, what is it that the Committee really recommends? The 1943 Report contained a Summary, which has been more referred to than has the text and has often been quoted and not infrequently misquoted out of context. It is largely because of this that there has been so much misunderstanding of the true position of the Committee. For example, despite the language quoted just above, it has been widely represented that the Committee recommends a so-called retroactive treatment of depreciation which would be manifestly inequitable under certain circumstances. This point was stressed particularly in a very clear and direct memorandum filed by the American Gas Association. In effect they said, 'we note what you say about treating individual cases equitably in accordance with the particular circumstances surrounding them, but we are skeptical of these reassuring generalities in view of other statements in the report.'

"The criticism has served a very useful and constructive purpose, for the 1944 Report spells out the matter just as fully and clearly as it is possible to do. No single, rigid formula is advocated, for none could be fairly applied to the difficult question of how to deal with inadequate or excessive reserves during the period of transition from Retirement Reserve to Depreciation Accounting under all the various combinations of circumstances which might obtain. On the other hand, by its treatment of examples at both extremes and by its discussions of the considerations to be taken into account in dealing equitably with the types of cases lying between these extremes, the Committee in its 1944 Report makes abundantly and specifically clear its sincerity when it says that principles of equity should control."

Straight-Line Method Held Generally Preferable

In stating his Committee's general preference for the straight-line method of depreciation over other methods, Commissioner Smith said:

"Depreciation is viewed as an economic problem, not exclusively within the province of either the engineer or the accountant, but calling for the best possible application of the techniques of both in estimating service lives realistically and in recording depreciation in terms of the cost of plant and in accordance with the requirements of the uniform system of accounts, rather than on the long outmoded and discredited retirement basis. A large segment of the utility industry is now following this practice, with the result that the electric utilities, for example, have been able to boast of the improvement in recent years of both annual charges and reserves, which had so greatly strengthened their credit and the position of their investors. The age-life basis of depreciation is recommended, not as an arbitrary formula for uniform application without regard to the past and probable future of the particular property, but as a guide to informed judgment in lieu of the horse-back appraisals of 'observed depreciation' so familiar to all who have participated in rate proceedings. That the sinking-fund method can sometimes be useful is recognized, but the straight-line method is generally preferred for accounting, financial, and regulatory purposes, both because of its greater simplicity and realism in application and because of its conservation in not deferring the accrual of the reserve until it may be too late, as a practical matter, to recover the capital which has been used up in rendering the service. Here again the great preponderance of present utility practice is in accord with the Committee's position."

F.P.C.—N. Y. State Natural Gas Corp.

The Federal Power Commission announced Nov. 14th, its order authorizing the New York State Natural Gas Corporation, a New York corporation with principal offices in Pittsburgh, Pennsylvania, to acquire certain facilities it now operates under lease from the Peoples Natural Gas Company.

According to the order the facilities to be acquired include about 89 miles of 12-inch pipeline extending from a point in Clarion County to a junction with New York State Natural's line in Potter County, Pennsylvania, a private telephone line paralleling the pipeline, and 58 feet of 12-inch pipeline extending between the line to be acquired and the Peoples Natural Gas Company's Pew Compressing Station.

The Commission in its order of April 26, 1944 authorized New York State Natural to construct and operate 127 miles of 12¾ inch pipeline extending from the Pennsylvania-West Virginia boundary line to a point of connection with the leased line of Peoples Natural Gas Company near the Pew compressing station, Penn. The order states that the construction of this line will permit New York State Natural to receive natural gas from the Hope Natural Gas Company in substitution for that purchased from Peoples. The ownership and operation of the line to be acquired from Peoples will provide New York State Natural with a continuous pipeline from this new source of gas supply.

Memphis Natural Gas Co. to Construct Additional Pipe Lines

The Federal Power Commission announced Nov. 22nd its issuance of certificates of public convenience and necessity to the Memphis Natural Gas Company, Memphis, Tennessee, for the construction and operation of additional facilities in Arkansas, Mississippi and Louisiana, required for the maintenance of adequate service to its present customers. The Commission's order expressly provides that the facilities shall not be used for the transportation or sale of natural gas to any new customers of either Memphis Natural Gas Company or United Gas Pipe Line Company except upon specific authorization by the FPC. The order also provides that Memphis Natural Gas Company must commence construction of the facilities not later than December 15 and proceed with due diligence to complete them at the earliest possible date.

The estimated over-all cost of the proposed facilities is $2,553,000, of which $1,440,000 represents the cost of the Lisbon line and $1,113,000 the cost of the main-line looping. The Memphis Natural Gas Company proposes to continue in effect the present rates to its customers and no increase is contemplated by reason of the construction and operation of the proposed facilities.

Relaxation of Gas Curbs to Continue

Easing of controls of the distribution of artificial gas will continue wherever found feasible since considered study reveals that such gas may be made available, the War Production Board said Nov. 3rd.

The WPB statement came following reports that relaxation of restrictions on artificial gas distribution had resulted in unfair discrimination against both oil consumers and suppliers. The agency declared that its relaxation orders had been carried through with the approval of both the Petroleum Administration for War as well as the Solid Fuels Administration following a survey made of seventeen Eastern States, including District No. 1.

The seventeen Eastern States, it was pointed out, comprised the bulk of the artificial gas users, or about 7,000,000 in addition to some 2,500 that would be affected by relaxations.

It was further stated that the amount of artificial gas which will be allowed by relaxation is so slight as to be negligible. In addition it was stated that only a limited amount of equipment for utilizing this type of heating fuel was available.

Earlier in the week it was also reported that officials of the Smaller War Plants Corporation were also giving the matter their attention. As near as can be checked at the moment no protest has been filed from this agency as yet.

It was also reported through the trade that conversions to artificial gas are proceeding at an alarming rate, particularly in Philadelphia and Westchester County areas. Domestic users, reports stated, are anxious to avoid short supplies of rationed oil and coal this winter, and conversion to gas is expected to continue to the full extent of the capacity of the utility companies. WPB said that it did not consider it fair to retain restrictions over suppliers to users of one type of fuel, merely because the suppliers of other forms of heating apparatus felt it would hurt their business.

W.P.B.—Copper-Base Alloys Including Gas Services

Pre-war serviceability will be restored to a number of highly important civilian products and components through a supplemental fourth-quarter allotment of 16,030,000 pounds of copper-base alloy, the War Production Board announced November 14th through its Office of Civilian Requirements.

WPB warned that many products using the copper will not come onto the market for some time, since manufacturers will have to order the copper and arrange to process it.

Among the products that have suffered in varying degrees through the substitution of less suitable materials for copper and brass and that will be restored to normal or nearly normal composition—except for plating—are a wide line of plumbing and heating components such as strainers, faucets, shower arms and tank floats, and underground water and gas service connections.

The supplemental allotment, made by the Requirements Committee, is large enough to allow reconversion to normal copper usage of most of the listed products at their present levels of production. In the other cases, it will allow a return to the use of copper in the parts that have been most adversely affected by the use of substitutes.

Two Gas Divisions Merged by OWU

The natural gas division and the manufactured gas division of the Office of War Utilities, WPB, have been consolidated into a single gas division, Edward Falck, director of the Office of War Utilities, announced Nov. 1, 1944.

Paul Taylor of New York City, who has been director of the natural gas division, has resigned to return to private industry, Mr. Falck said. Alexander Macomber of Boston, director of the manufactured gas division, has been designated director of the new gas division. A. W. Lundstrum of Maplewood, N. J., deputy director of the natural gas division, has been designated deputy director of the gas division.

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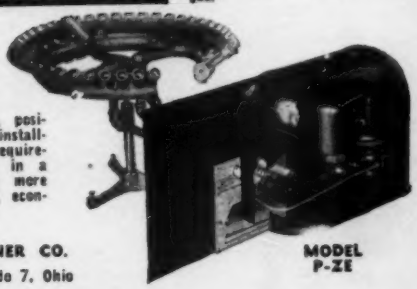
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MODEL P-ZE

New Equipment and Appliances

Electronic Box Locator

Including some features of design which are employed in the mine detector used by the United States Army, the 1945 model of the "Bob White" electronic box locator is announced by the manufacturer, S. F. Ferguson, 11 Hill St., Newark 2, N. J.

Bob White Box Locator

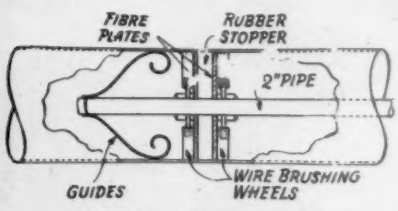
The "Bob White" is used for the rapid location of curb, street, meter and drip boxes, manhole lids, etc., even when boxes are demagnetized.

The new model shown has the amplifier case mounted on the handle of the search coil, with the dry-cell batteries in a separate metal case with leather strap for carrying from the shoulder. Size and weight of case have been reduced from those in previous models. Improvements have also increased the depth efficiency.

When the loop aerial, carried by the operator, passes over the objective, the earphone gives a signal sounding like the call of the bob white—hence its name.

Gas Line Plug for Fire Emergency

A radical departure from the conventional uses of wire brushing wheels involves their application as heat dampeners for gas line shut-off plugs in case of fire.



Gas Line Emergency Plug

This interesting development was described in a report to The Osborn Manufacturing Company, Cleveland, Ohio, producers of power brushes.

The novel use for power brushing wheels was conceived and put into practice by the Southern Counties Gas Company of Los Angeles, Calif., which utilizes power brushing for such jobs as de-scaling, weld cleaning, rust removing and other duties around oil and gas lines and refineries.

A break in the line during a fire would endanger the entire system unless these emergency shut-off plugs were quickly inserted in the line. Unlike steel pipelines, which can be stut off by hydraulic jacks in emergencies, cast iron pipe will not withstand the excessive pressure without fracturing and releasing gas which may become ignited.

The plug consists of a rubber stopper, flanged by fibre plates with a disc-center section wire brushing wheel on each side.

In case of a break the plug is screwed on a 20-foot length of 2-inch pipe which serves as a handle for inserting the plug into a broken pipeline without endangering the service operator.

Portable Searchlight

"Big Beam" No. 411 Portable Electric Hand Searchlight, made by U-C Lite Manufacturing Co., Chicago 11, Ill., will project an intense beam of more than 2,500 feet or, by means of a snap-on lens, give the same volume of light over a wide area. Powered by a heavy-duty, shockproof 6 volt storage battery, rechargeable from any A.C. charger, D.C. line or light plant. Lamp head can be turned in any direction and stays adjusted. Properly balanced for carrying, either by hand or with shoulder-strap. Can be set almost anywhere or can be securely anchored to any flat surface.

"Big Beam" Searchlight

Adaptable to a wide range of uses including maintenance, repair, plant protection, construction departments of public utilities, etc. Other models available powered by dry-cells.

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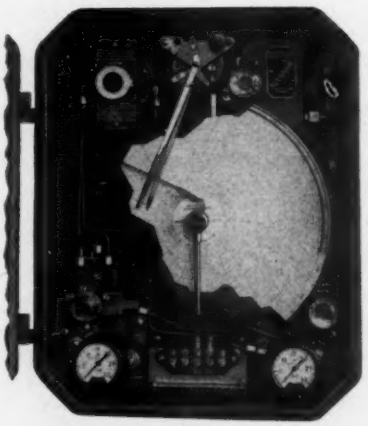
To meet the demand for supplementary control, Taylor Instrument Companies offer an Automatic-Manual Control Unit with several outstanding improvements.

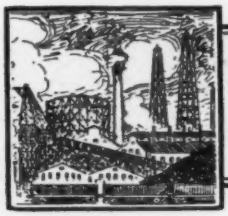


Automatic-Manual Unit

When this unit is in a "manual" position, controlling air pressures are also applied to the idle mechanism of the Fulscope Controller which is thus maintained in constant balance with the process. Because of this balance, control can be changed instantly from "manual" to "automatic" without causing process disturbances.

The unit is designed to be installed entirely within the case of a Fulscope Single Duty Recorder Controller. It can be supplied already installed in new instruments, or it may be added to equipment already in the field.

More details about operation and installation may be secured by writing the Taylor Instrument Companies, Rochester, N. Y. for bulletin No. 98056.



News of the Gas Industry

Tennessee Gas & Transmission Line in Service Oct. 31st

The longest pipe line of its kind in the world began pumping and delivering its daily output of 200,000,000 cubic feet of natural gas from Texas fields to the heavily industrial Pittsburgh-Youngstown-Cleveland area where natural gas shortages in the past have necessitated plant shutdowns, and to a large section in the East extending as far north as Syracuse, N. Y., on October 31st.

Traversing seven states, the 1265-mile-long 24-inch diameter gas pipe line was built by the Tennessee Gas & Transmission Company in unprecedented time after a survey by the War Production Board had resulted in a letter to the Federal Power Commission stating that "A new transmission line must be built, as an essential part of the war program, to augment natural gas supply into the Appalachian area."

Fighting against time and nature, engineers finished the line in record-breaking time. The first pipe was welded on January 10, 1944. The final tie-in weld was made on October 30th on the east side of the Buffalo River, Perry County, Tenn.

There were 67 rivers and streams to cross. Two hundred and seventy-four highways and 62 railroads had to be traversed. A ditch had to be blasted through approximately 400 miles of rock; there were 700 miles of forest and heavy undergrowth to cross; dangerous cliffs and precipices in the 600-mile section from Batesville, Miss., to Cornwell, West Virginia, had to be avoided.

To save every possible hour, engineers kept the line "packed" with gas held at 800 pounds pressure as they went along. As a result, when the final tie-in weld was made, and valves turned, gas was almost immediately pouring from the pipe line terminus, thus saving the six days required for the gas to travel through the line over its imagination-staggering length.

The pipe line traverses Texas, Louisiana, Arkansas, Mississippi, Tennessee, Kentucky, West Virginia. At its terminus, the natural gas is piped into the lines of existing utility facilities now servicing their respective areas.

Louisiana Eng'g. Society

The Annual Meeting of the Louisiana Engineering Society will be held in New Orleans at the St. Charles Hotel, January 11th to 13th.

The three day program will include a number of technical papers by engineers of nation-wide reputation. Details of program to be announced later.

Mr. Stone Leake of General Electric Co. will be convention chairman, assisted by Charles Kerr, President of the Society.

Louisville Gas and Electric Co. Constructs 65-Mile Pipeline

The Federal Power Commission has announced its order authorizing the Louisville Gas and Electric Company to construct and operate additional facilities, including a 65-mile pipeline to connect with the Tennessee Gas and Transmission Company's Texas to West Virginia pipeline which was recently completed. The natural gas to be transported by the proposed facilities is a supplemental supply for the company's existing system, the order states, and the operation of these facilities is required to assure maintenance of adequate natural gas service to the consumers presently served by Louisville Gas and Electric Company. The company, the order adds, has arranged to obtain 10,000 Mcf of natural gas daily from the Tennessee Gas and Transmission Company's pipeline for service in the city of Louisville and environs.

The Public Service Commission of Kentucky, by its order adopted July 25, 1944, approved the construction and operation of the proposed facilities, which the FPC order provides shall be completed not later than January 31, 1945.

Southwestern Gas Measurement Short Course

The General Committee of the Southwestern Gas Measurement Short Course met in Dallas, Texas, on November 10, to make plans for the 1945 Short Course.

Mr. Earl Kightlinger, Arkansas Louisiana Gas Company, Shreveport, Louisiana, Chairman of the Committee, announced the tentative dates set for the 1945 School as April 17, 18 and 19. During the meeting, Mr. C. A. Gibson, Cities Service Gas Company, Bartlesville, Oklahoma, was elected Chairman of the Program Committee; Mr. R. M. Scofield, Lone Star Gas Company, Dallas, Texas, was elected Chairman of the Exhibits Committee; Miss Kate A. Niblack, Oklahoma Utilities Association, Oklahoma City, Oklahoma, was elected Chairman of the Registration and Publicity Committee. Dean W. H. Carson, College of Engineering, University of Oklahoma, Norman, Oklahoma, who is Chairman of the Executive Committee of the Course, was elected Chairman of the Banquet, Entertainment and Local Arrangements Committee; Mr. W. H. Woods, Gulf Oil Corporation, Houston, Texas, Chairman of the Committee for the Study of Practical Methods, was continued in that position.

Mr. William D. Yale, The Texas Company, Houston, Texas, was appointed to serve on the General Committee to take the place of Mr. Max K. Watson, Canadian River Gas Company, Amarillo, Texas, who will become a member of the Executive Committee.

Institute of Gas Technology Announces New Appointments

Four appointments to the staff of the Institute of Gas Technology, have been announced by John I. Yellott, director.

Leslie J. Kane, who will serve as associate chemical engineer, has had fifteen years of experience in chemical research and engineering. His last position was with the Tiokol Corporation in Trenton, N. J., where he had worked since 1942. Mr. Kane was graduated in 1929 from Armour Institute of Technology, one of the predecessors of Illinois Institute of Technology.

Formerly research chemical engineer for the M. W. Kellogg Company and the Kellex Corporation, William Volk will serve as assistant chemical engineer in the institute's coal and coke section. His first assignment concerns improved methods of utilizing southern Illinois coal. He is a 1939 graduate of New York university and has done advanced work at Brooklyn Polytechnic Institute.

M. Frank Knoy has been appointed senior mechanical engineer in the appliance section, where he will do research and will work on the design of gas burners and ranges and on special problems of appliance manufacturers. A graduate of Texas Christian University, he has devoted his time since 1927 to various phases of engineering. For the last eight years he has served as combustion engineer for the Long Beach Municipal gas department. He is the author of more than a dozen magazine articles and holds patents on several inventions.

A new junior physicist on the Institute's staff is Lewis B. Leder, who was graduated from the University of Idaho in 1943 and until June was instructor in physics at Williams College in Massachusetts. Later he did optical work at the Bell and Howell Company.

G. D. Creelman Appointed to Gas Institute Staff

The appointment of George D. Creelman as administrative assistant to the director has been announced by the Institute of Gas Technology.

Mr. Creelman's duties include recruiting research personnel, coordinating the institute's work in the field of patents, and overseeing its library.

Formerly research engineer for the Monsanto Chemical Company in St. Louis, Mr. Creelman, a Harvard graduate, had previously worked for eleven years with the M. W. Kellogg Company in New York City. His work there included the organization of a patent department and a company library.

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Start the ball rolling by appointing a 6th War Loan Bond Committee, representing labor, management and other groups.

Carry on by selecting a Team Captain—preferably a returned veteran—for every 10 workers.

Right at the start, establish a Quota for each department—and every employee.

Arrange frequent Meetings of Captains, highlighting importance of their work—effective sales methods—and need for painstaking study of Treasury Booklet, Getting The Order.

Make definite **Assignments** to those best equipped to arrange music, speeches, rallies, competitive progress boards and meeting schedules.

Issue **Individual Pledge Cards**—made out in the name of each worker and providing for both cash and installment purchase.

Resolicit! This is the secret of "overboard" War Bond subscriptions. Your State Payroll Chairman has a special Resolicitation Plan for you to put into action near the end of the campaign.

Give generously of your **Advertising Space** to drive home the War Bond story.

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★ *This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council* ★

Vented House Heating

In an address presented by Chester L. May, Vice President of Lone Star Gas Company, before the Gas Division of Oklahoma Utilities Association in September, he stressed the importance of educating the public on the advantages of vented house heating.

After reviewing the earlier types of unvented room heaters, many of which were installed, he said in part:

"We frankly told our customers that sweating of walls, windows, and furniture was caused from unvented heaters and improper or too little ventilation. We talked of burned gases, and the possibility of unhealthful fumes from poorly adjusted stoves; we told them that in a closed room a deficiency of oxygen might readily be created as both the occupants and the gas appliance were consuming it, and in addition, we said, unless the entire house were heated, they could have neither the best livable nor the most comfortable conditions.

"This education was helpful, but while we suggested and urged vented equipment, we continued also to sell unvented heaters in large numbers, thus giving our approval of their use; and we made no other move to restrain the dealers from enthusiastic marketing of this type of appliance.

"It seems to me that we now have a golden opportunity to revolutionize house heating methods and work to the point where we can eventually advertise the statement that for major heating the unvented space heater is only a substitute for proper home heating, and should really not be used for that purpose. The postwar demand will not only bring central heating and cooling but improved and more efficient vented heating generally will be introduced, as much has already been originated. Let us tell our customers honestly and sincerely the kind of modern heating equipment they should use and the straight unvarnished facts about the insufficiencies and inefficiencies of the unvented heaters. Let us try to raise the standard to where it should be, improve living conditions, and welcome the added appreciation of our service that will be voiced by our customers. They will tell you how glad they are to pay more for the extreme satisfaction they enjoy with proper heating as they always have whenever one made the change."

Cooper-Bessemer Corporation Appoints A. M. Buxton

A. M. Buxton has been promoted to assistant sales manager of The Cooper-Bessemer Corporation, it is announced by S. E. Johnson, general sales manager, with headquarters at Mount Vernon, Ohio.

In addiiton to sharing responsibilities of the general sales manager, Mr. Buxton will direct the Company's oil and gas field sales, according to Mr. Johnson, since he has been working closely with these fields in his former position at the Company's Tulsa office. Mr. Buxton has been with Cooper-Bessemer for 20 years.

TURN THAT BURNER DOWN JANE!
TURN THAT BURNER DOWN!
TURN
Sure gas works fast — sometimes faster than needed. A simmer boil cooks not as fast as a rollicking boil. When the pot reaches a boil turn the burner down to simmer heat. Food tastes better, is more nutritious, and cooking vapors do not escape. Most important, you'll be saving gas for the critical needs of war plants. This winter when all fuels are short, help gas do its double duty — on the war front AND on the kitchen front.
THE OHIO FUEL Gas Company
GAS SERVES THE HOME FRONT AND WAR INDUSTRIES

GAS ECONOMY IN THE HOME

This newspaper copy (original size 14 inches by 3 columns) was given wide use by Ohio Fuel Gas Company of Columbus.

Stressing economy in gas usage in the home it features cooking, house heating, water heating and the use of storm doors and windows.

Illinois Institute Reports Enrollment Increase

An approximate rise of 20 per cent in enrollment was made by Illinois Institute of Technology in the new term which started on November 2, figures compiled by W. E. Kelly, registrar, show.

Dr. Henry T. Heald, president, says that he sees in the brighter enrollment picture a trend to the increases that are to be expected as the war in Europe draws nearer to a close.

Of the 2,077 total enrolled in day and evening classes for the term, 62 are returned veterans of World War II who are in attendance as civilian students.

The Navy V-12 unit on the campus now totals 398 men, many of whom are also veterans of active duty during the present war.

Biggest rise was in the division of arts and sciences where 323 more were enrolled than last term.

Day registration in both arts and sciences, engineering and the 45 in graduate school totals 1,106, while 955 are enrolled in evening courses.

Dresser Industries Headquarters Move to Cleveland, Ohio

Dresser Industries, Inc., a $35,000,000 enterprise and one of the country's largest manufacturers of equipment for the oil, gas and industrial fields, will move its headquarters from Bradford, Pa., to Cleveland, O., H. N. Mallon, president, announces. Executive offices will be located there in the Terminal Tower.

Cleveland already is the home of a Dresser Industries' member company, The Bryant Heater Co., and of an affiliate, Van der Horst Corp. of America. Dresser Industries, Inc., is the parent corporation of a group now comprising 10 companies, all in related lines of manufacture.

The factory of the Dresser Manufacturing Division at Bradford, up to now the parent corporation of the Dresser group, will remain in Bradford and operate as Dresser Manufacturing Division of Dresser Industries, Inc. Other member companies in addition to those in Cleveland include Clark Bros. Co, Inc., Olean, N. Y.; Pacific Pumps, Inc., Huntington Park, Calif.; International Derrick & Equipment Co., Columbus, Delaware and Marietta, O., Beaumont, Texas, and Torrance, Calif.; Roots-Connersville Blower Corp., Connersville, Ind.; Stacey Bros. Gas Construction Co., Cincinnati, O.; Bovaird & Seyfang Mfg. Co., Bradford, Pa.; and Dresser Manufacturing Co., Ltd., Toronto, Ont.

Dresser Manufacturing Co. Continues as Dresser Division at Bradford, Pa.

Dresser Manufacturing Co., of Bradford, Pa., makers of flexible pipe couplings and other pipeline products since 1880, has changed its name to Dresser Manufacturing Division of Dresser Industries, Inc., H. P. Boncher, general manager, announces.

This change of name distinguishes Dresser Manufacturing Division and its Bradford operations from the parent organization, Dresser Industries, Inc. It will not affect personnel, products, or development program of the Division.

Surface Combustion Purchases Columbus Plant

Surface Combustion, Toledo, O., has purchased the building adjacent to its Columbus factory in preparation for substantial increases in postwar employment and production on Janitrol heating equipment.

The newly-acquired building adds 130,000 square feet, doubling production space of the Columbus factory where all Janitrol gas-fired domestic furnaces and commercial unit heaters were made before the war.

Alterations will be made as rapidly as war schedules and available materials will permit. New and present facilities will be devoted to production of Janitrol space heating products, including aircraft heaters, which are being installed in planes of the United Nations as rapidly as they can be made.

Valve Division National Machine Works Purchased by E. H. Wachs Co.

The valve division of the National Machine Works of Chicago, has been purchased by E. H. Wachs Co., also of Chicago. The National Machine Works, during the past several years, had developed an extensive line of gas valves and gas plant accessories.

E. H. Wachs

This purchase extends the services of the Wachs Company, which has been in business since 1883 manufacturing engines, special machinery and machine tools. The Wachs engine is widely used in the gas industry for driving exhausters, fans, stokers, pumps and sulphate dryers.

Edward H. Wachs, secretary of the E. H. Wachs Co., says the company's entrance into the gas equipment field is somewhat of a homecoming for him. He spent 13 years in the gas utility business, in various capacities with the North Shore Gas Co., Waukegan, Ill. Prior to his connection with the Wachs Company he was assistant general manager of North Shore Gas Co. He feels that his background and practical operating experience with the manufactured gas business will be of considerable help in developing the National line.

General Controls Co. Receives Second Production Award

General Controls Co., Glendale, Calif., is in receipt of a letter from Under-Secretary of War R. P. Patterson, announcing that the firm, for the second time in 1944, has been awarded the Army-Navy production award for meritorious services on the production front.

The "E" flag was presented at ceremonies at the headquarters plant in Glendale.

New plant of the Hotstream Heater Co., formally opened in October.

Hotstream Celebrates Opening of New Plant

Celebrating the formal opening of their new plant at 2363 East 69th Street, Cleveland 4, Ohio, the employees of The Hotstream Heater Co. were feted at a dinner party October 18th. Mr. L. R. Mendelson, President of the Company, addressing the group, paid tribute to the many faithful employees who have records of long service with the company. He called attention to the remarkably low turnover record, which shows that 7% of all employees have been with Hotstream for 25 years or more, 21% for 20 years or more, 28% for 15 years or more, and 66% for more than 5 years.

The new plant approximately doubles the company's production facilities, and is now completely equipped to meet the large post-war demands for water heaters and domestic, commercial and industrial combustion control equipment.

During the War, Hotstream has supplied their products in large numbers to Federal Housing Projects, Army Barracks, and other Government buildings and War Plants. They also provided a limited number of Victory model water heaters for civilian domestic requirements, and the Hotstream Draft-O-Stat was sold without restriction to help alleviate the fuel shortage.

With many restrictions being lifted, they are now producing their regular line of products insofar as materials are available. During normal times the Company employs 200 people.

Midwest Research Institute Appoints Harold Vagtborg Pres.

Harold Vagtborg, at present director of the Armour Research Foundation at Illinois Institute of Technology, has been appointed president of the Midwest Research Institute, Kansas City, Mo., Robert L. Mehornay, chairman of the board of governors, and J. C Nichols, chairman of the trustees, announced November 13th.

The Midwest Research Institute was organized as a nonprofit, scientific, research organization founded to develop agriculture, business, commerce, industry, and the natural resources of the Mid-West.

Vagtborg's appointment will be effective January 1, 1945. He comes to Kansas City after having built the Armour Research Foundation into one of the largest institutions of its kind in the country. Under Vagtborg's leadership it grew from a staff of three scientists, quarters of three rooms and budget of $300,000 to its present status where it is employing 300 persons, occupying five buildings and had a budget for the fiscal year just completed of more than one and one-half million dollars.

Robt. Lander Joins Minneapolis-Honeywell

Robert Lander of the Consolidated Edison Company of New York, Inc., has resigned as secretary-treasurer of the Metropolitan House Heating and Air Conditioning Council, it was announced at the council's regular monthly meeting held November 15 in New York. His resignation took effect December 1st to assume new duties with the personalized heating division of Minneapolis-Honeywell Regulator Company.

Edward J. Gerridge, The Brooklyn Union Gas Company, was elected to serve out the balance of Mr. Lander's term of office.

The Reliable Shut-Off for Street Mains

THE GOODMAN STOPPER

Now has the "Z" handle for easy manipulation. When locked in place it holds. Stopper cannot slip. Gas cannot pass. Adjusted in 30 seconds.

Ask for circulars on this and other distribution equipment.

Nearly a half century of service to the Gas Industry.

Safety Gas Main Stopper Co.
523 Atlantic Avenue, Brooklyn, New York

Suffron Joins Staff of Hammel Radiator Eng. Co.

Fay Suffron, former supervisor of the American Gas Association's testing laboratory at Los Angeles, has been appointed a research engineer on the staff of Hammel Radiator Engineering Co. of Los Angeles.

Top: F. O. Suffron. Below: A. S. Martinson and L. M. Hull.

Mr. Suffron, a graduate in civil engineering from Oregon State College, is a well known figure in the gas industry throughout the country. He was formerly with Portland Gas & Coke Co., Portland, Ore., and with Washington Gas & Electric Co., Tacoma, Wash. For a period of 10 years he was an active member of the research staff of the American Gas Association, first at the testing laboratories in Cleveland, and later as supervisor at the A.G.A.'s Los Angeles testing laboratory. The greater portion of domestic gas research now being reported by the laboratory was initiated under Mr. Suffron's supervision.

A. S. Martinson, vice-president and general manager of Hammel Radiator Engineering Co., also announced that the interest in the Hammel Radiator Corp. (which Hammel Radiator Engineering Co. took over in 1942) held by Mrs. S. D. Crozier, has been acquired by him. Following this change, six of the key men in the organization purchased an interest in the business, he reported, becoming associates with Mr. Martinson in the firm. These are L. M. Hull, sales manager; R. A. Martinson, purchasing agent; R. E. Washburn, development engineer; L. K. Silvrants, day superintendent; W. M. Easley, night superintendent; and Mr. Suffron, research engineer.

A. E. Baldakoff Joins Engineering Staff of The Sprague Meter Company

Alexis E. Baldakoff, a distinguished Russian engineer, has become a member of The Sprague Meter Company's Engineering Staff. Mr. Baldakoff, a native of

A. E. Baldakoff

Petrograd, graduated from the Polytechnic Institute of "Peter the Great" where he majored in hydraulics. After serving in various branches of the Russian Army during the last War, Mr. Baldakoff came to this country as an ordnance inspector. Since then he has had wide experience in synthetic rubber goods, both molded and dipped. He has held executive positions in this field and has considerable background as an experimental engineer in various fields of endeavor.

Mr. Baldakoff brings to The Sprague Meter Company his wide experience which will be used effectively on engineering problems and in the laboratory for research in which the company is now actively engaged.

Wiley Joins Big Three Welding Equipment Company

George L. Wiley, trail-blazing pioneer in the art of arc welding, has joined the Big Three Welding Equipment Company at Houston, Texas, as welding consultant, it is announced.

The company with offices also at Fort Worth, El Paso, Orange and San Antonio, is the Texas distributor for The Lincoln Electric Company, Cleveland, Ohio.

Better known in the industry as "Duke," Mr. Wiley has been promoting the use of electric arc welding for the past 26 years. He was the founder of the first Fusion

George L. Wiley, Welding Pioneer

Forum, has held committee chairmanships in both the American Welding Society and the American Society for Metals and has addressed many societies, universities and other groups on welding. He was one of the first to undertake the arc welding of oil storage tanks and welded steel construction of buildings.

COMPLETE GAS PLANTS

●

INDUSTRIAL FURNACES

●

THE GAS MACHINERY CO.

16100 Waterloo Road

Cleveland 10, Ohio

"JOURNAL" GAS FLOW COMPUTERS

High Pressure

RANGE:

Cu. Ft. of Gas Per Hour—100-10,000 M
Diameter of Pipe—Inches ¾-30
Difference in Absolute Pressure—Lbs. per sq. in., 1-500
Sum of Absolute Pressures—Lbs. per sq. in., 2000-20
Specific Gravity—1.5-.35
Length of Pipe—Feet 100-5000
Length of Pipe—Miles 1-250

Low Pressure

RANGE:

Cu. Ft. of Gas Per Hour—10 to 500 M
Pipe Diameter—¾" to 48" (including standard and actual weight up to 4")
Pressure Loss—Inches .01-10
Length of Pipe—Feet 30-30,000
Specific Gravity—1.5-.35
Constants—1400-1000

Made of durable celluloid, encased in a convenient leatherette cover with complete instructions. Actual size 6¼ x 7½

3.50 Each Postpaid

American Gas Journal
53 Park Place, New York 17

Servel Program for Selection of Salesmen Presented by Dr. Robert N. McMurry

A group of about one hundred gas company sales executives, and managers attended a meeting at the Biltmore Hotel, New York, on December 1st. The meeting was held under the direction of the Residential Gas Section of A.G.A.

At the morning session the Recruitment, Selection, Indoctrination and Sales Training Programs for sales personnel were presented by Dr. Robert N. McMurry and his associates of Servel, Inc., and Mr. R. E. Williams, Chairman of the Committee on Selection and Training of Sales Personnel.

Dr. Robt. N. McMurry

The program on Selection has been specifically designed for the gas industry by Dr. McMurry, and has been released to the Committee on the Selection & Training of Sales Personnel, by Servel, Inc., for use by the gas industry.

Dr. McMurry outlined the great amount of research work required in formulating the program. Gas company executives and sales managers in over fifty companies, located in every section of the country were interviewed, and records of their salesmen examined. It was from this data material that the program was devised.

He outlined the various steps of the program, and emphasized the various steps with skits, which showed the type of interview that did not produce much information on the abiilty of the applicant as a salesman, followed by an interview after the information given in the application had been properly checked. These skits illustrated each step in the selection programs.

Servel, Inc., has also published three manuals, which illustrate and describe every phase of the program. Manual I, covers the Preliminary Screening Interview. Manual II, The Patterned Interview, and Manual III, The Interpretation of the Interview Findings. They have also published a fourth manual on "Recruiting Salesmen." These manuals are for the gas company sales executives, who are interested in the program.

A series of these meetings are being held early in December in various parts of the country. In addition to the Selection Program, these meetings will feature a presentation on the vital Coordinated Gas Kitchen Program under the direction of Mr. H. Vinton Potter, the Program Director. The afternoon session in New York Dec. 1st, was devoted to the Coordinated Gas Kitchen Programs.

CONVENTION CALENDAR

December

13 *New England Gas Association,* Safety Conference of Operating Division, Hotel Statler, Boston.

January

10 *New England Gas Association,* Operating Division, Hotel Statler, Boston.

11-13 *Louisiana Engineering Society,* Annual Meeting, St. Charles Hotel, New Orleans.

February

8-10 *American Gas Association,* Domestic Gas Research Conference, Hotel Statler, Cleveland.

March

29-30 *American Gas Association,* Industrial and Commercial Gas Conference, Toledo, Ohio.

April

17-19 *Southwestern Gas Measurement Short Course,* Norman, Okla. (Tentative dates.)

The Ruud Manufacturing Company Elects New Officers

R. H. Lewis has been made president and general manager to replace A. P. Brill who now fills the newly created post of board chairman. J. H. Sorg becomes vice-president and counsel;—other officers are M. M. Scott, vice-president in charge of sales and advertising, K. M. Clark, secretary and treasurer, and J. K. Roth, assistant secretary and assistant treasurer.

Members of the board of directors are A. P. Brill, R. H. Lewis, J. H. Sorg, K. M. Clark, M. M. Scott, M. G. Hulme, W. W. McVay, W. R. Daley and M. W. Taylor.

All company officers have been identified with the company for many years. Richard H. Lewis started in 1914 as district sales manager in Iowa and Illinois, later managed the Detroit, Mich., branch and joined the headquarters staff in Pittsburgh in 1923 as general sales manager. Subsequently he held the office of secretary and treasurer and more recently that of vice-president. He has been a member of the board of directors and active in all phases of company business for many years.

A. P. Brill has spent practically his whole business career with the Ruud Manufacturing Company and has contributed substantially to its growth and success. His service started in 1902. Since then he has held several offices and has been a long-time member of the board of directors. He has been president of the company from 1932 until this year. While he will not be as active in management activities as he has formerly been, the company will have the benefit of his deep experience and wise counsel.

John H. Sorg is a well-known Pittsburgh attorney and has been a member of the board of directors since 1932. More recently he has held the post of secretary and counsel for the company.

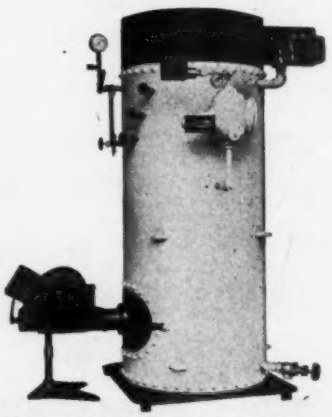
Kenneth M. Clark joined the New York City branch of the Ruud organization in 1924 and a few years later was transferred to the sales and advertising departments in the Pittsburgh home office, later serving as assistant general sales manager. For the past several years he has been chief of the buying division and co-ordinator of the company's war contracts. Malcolm Scott's association with the company dates from 1919 and his principal work has been in advertising and sales promotion. John Roth has been a member of the accounting department for fifteen years.

At the same time, announcement was made of the appointment of F. A. McFerran as general sales manager. Frank McFerran came with the company shortly after World War I as a salesman in the Chicago, Ill., branch. Soon he became district manager at Louisville, Ky., and since 1928 had been district manager of southern Ohio and Kentucky, with headquarters at Cincinnati, Ohio.

A. B. Cameron Joins Grand Home Appliance Company

Mr. James Mitchell, President of Grand Home Appliance Company, Cleveland, Ohio, announces the appointment of A. B. Cameron as Assistant Sales Manager.

LATTNER GAS — OIL BOILER 3 HP to 35 HP.



Burns natural gas or regular furnace oils with equal efficiency using same burner.

P. M. Lattner Mfg. Company
Cedar Rapids, Iowa

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BACK ISSUES—BUREAU OF MINES AND GEOLOGICAL SURVEY REPORTS AVAILABLE

Out of print Geological Survey and Bureau of Mines publications supplied. Send for lists indicating States in which you are interested. James C. Howgate Bookseller, 120 So. Church St., Schenectady 5, N. Y.

Gas Main Repaired Under Deep Fill with "Inner Tube"

How 800 feet of three-inch pipe was inserted as an "inner tube" for a leaking and deeply buried six-inch high pressure gas main to conserve both manpower and material is an interesting story that comes from the distribution bureau of the Portland (Ore.) Gas & Coke Company.

The "inner tube" idea was successfully applied where a new section of highway covered to a depth as great as 40 feet the main that was laid in 1930. Electrolysis had eaten away a section of the original six-inch line.

By-passing the deep fill with a new main would have required twice the material, involved several engineering difficulties and tied up manpower badly needed for other important main and service work.

Step number one was a temporary surface line to maintain service while repairs were made. Next, to make certain that the old main was straight enough to make the "inner tube" idea feasible, a one-inch pipe was run through to explore the situation.

Successful in this, the men used the one-inch pipe to pull a cable back through the main. With the other end of the cable attached to a winch, 800 feet of welded three-inch main was pulled through with only minor difficulties and the job completed in record time.

New Pipe Adequate

A Salem district crew under Foreman Lloyd Edgell handled the job. J. L. Verhei supervised operations.

And how can a three-inch main do the work of a six-inch main? The answer is that it can't—quite. However, the section involved is so comparatively short that even though the rate of pressure drop per unit of length is considerably greater in three-inch pipe than in six-inch pipe, the total pressure drop through the three-inch section under present load conditions is negligible and will not be important even if the load on the line is very substantially increased. —*The Blue Flame.*

Southern California Active in Chemical Industry Development

To develop Southern California's potential chemical industries, the Los Angeles Chamber of Commerce Industrial Development Committee, of which George J. O'Brien is chairman, has arranged wtih Dr. Herbert Waterman to conduct a comprehensive survey of local mineral resources used in chemical production

Dr. Waterman, who is associate professor of chemical engineering and acting head of the Department of Chemical Engineering, University of Southern California, as well as a consulting engineer in his own right, has forwarded a questionnaire to chemical plants in Los Angeles, Orange, San Bernardino and Riverside counties.

POSITION OPEN
Gas Plant Manager

The man we seek is an aggressive individual with a sound background in all phases of operation, who is capable of assuming active management of a small New England water gas property. This man can step in and put into effect certain economies that have already been carefully evaluated for their immediate possibilities. The company's and the Community's post-war potentialities have also been carefully studied. Here is a splendid opportunity for the right man, and to him we are prepared to offer an attractive salary and profit sharing bonus. In your first letter please state as fully as possible all your qualifications and salary requested. Replies will be treated in strictest confidence. North American Utility & Construction Corp., 415 Lexington Avenue, New York 17, N. Y.

Purging Gas Holder

(Continued from page 12)

Refilling

We are now in Phase IV. It was necessary for us to obtain approximately 8½ million gallons of water to refill the tank. This amounts to about ⅓ of the daily output of the New York Water Service Corporation which serves this area.

Water normally supplied from the street hydrants at this location would take approximately three weeks time to fill the tank. In order to save time, and insure a continuous supply, a six-inch line was run directly from one of their wells located across the street and water was discharged directly into the holder tank at a rate of approximately 2,000,000 gallons per day. This operation was completed in about four days time.

After rewatering, the boats were launched again and the internal rollers adjusted as the holder is operated with air.

Final purging and connecting the gas mains completed the job.

Our gas holders are outstanding pieces of equipment in many ways. There are no two in our system which are identical in construction and each has its own peculiarities which our people have come to know. Fortunately our holders, eleven in all, ranging from 1 million to 15 million cubic feet capacity, are all dependable and faithful in their performance over long years of very essential service to our customers.

Damage Suits

(Continued from page 34)

After carefully reviewing all of the testimony the higher court upheld the verdict rendered by the jury, and said:

"The negligence relied upon was the removal of the stop-and-waste valve in the gas pipe and the insertion, in lieu thereof, of a short length of pipe, so that gas was caused to flow through said pipe into the ladies' rest room and to escape therein. . . . The evidence further shows that on September 26th Mr. Smith of the gas company notified defendant's secretary that there was a gas leak in the building, and that said secretary informed Mr. Smith that a plumber was working in the building at the time and that he, defendant's secretary, would have the plumber check into it and repair the leak."

NOV 14 1945

Indoor Climate Institute Establishes Local Chapter

The Air Conditioning Council of Western New York, according to an announcement by W. E. Voisinet, President, will become the first local chapter of Indoor Climate Institute. The formal induction ceremony was held at the Buffalo University Club the evening of November 14th. The name of the local organization will be changed to Indoor Climate Institute, Western New York Chapter.

Mr. Voisinet pointed out that the Air Conditioning Council of Western New York has been operating for eight years and has pioneered much of the same work that is being done by the Indoor Climate Institute. "Our members voted to join forces with the national I. C. I. in order to reinforce and broaden our public information and training programs," Voisinet said.

P. B. Zimmerman, Vice President of Chrysler Corporation, Airtemp Division, and President of Indoor Climate Institute, was the principal speaker at the Buffalo induction ceremonies.

Estate Distributors Meet in Cincinnati

Announcement has been made that appointment of wholesale distributors who will handle the sale of Estate Heatrola Ranges and Heaters when civilian production is resumed has been completed. A 3-day convention for all distributors was held in Cincinnati November 14th to 16th. Approximately 140 people representing 80 distributors attended.

The first two days' sessions were held in the Pavilion Caprice of the Netherland-Plaza, Cincinnati. On the third day the distributors visited the Estate plant in Hamilton.

S. C. Bernhardt, vice-president in charge of sales, was in charge of the meeting.

Enthusiasm over the prospects for postwar sales tempered by a realistic attitude toward present wartime restrictions, marked this first annual convention of Estate's wholesale distributors.

In the opening session, Mr. David F. Kahn, Estate president, expressed the enthusiasm of the management for the newly-established company policy whereby all sales of Estate products after December 1 will be handled through wholesale distributors on an exclusive territorial basis.

"It is a big step forward for the stove industry," said Mr. Kahn, "and I personally have no doubt as to the outcome. I firmly believe that, working together, we will attain the increased volume which will lower selling costs just as surely as mass production lowers manufacturing costs and thus brnigs benefits to the consumer, to the dealer and to all concerned."

In a forum discussion of their market when civilian production is resumed, editors and publishers of various business papers spoke on behalf of their respective fields, including: H. Vinton Potter, of The American Gas Association, on gas ranges for city gas. S. C. Bernhardt, presented the company's new sales policies; C. M. Dunn, assistant sales manager, gave a dramatic presentation of the features of the various Estate products and an outline of a new sales training program; Walter S. Rowe, merchandising manager, reviewed the company's advertising and promotion activities and announced an expanded program of consumer and trade paper advertising for 1945.

At the close of the sessions in the hotel was the unveiling of a mock-up of a new range, to be offered in both gas and electric models, designed for postwar production.

Florence Stove to Acquire Marshall Stove Property

The Florence Stove Co., of Gardner, Mass., announced in November that arrangements had been completed for the firm to acquire the property of Marshall Stove Co., of Lewisburg, Tenn., as a step in its plans for post-war expansion. R. L. Fowler, Florence Stove president, said that George B. Colburn, superintendent of the Gardner factory, would assume full charge of the new Southern factory.

CLARENCE F. WILEY

Clarence F. Wiley, who began his stove career with the Magee Furnace Company in Boston in 1900 and more recently with the Glenwood Range Company in Taunton, Massachusetts, died at the age of 65 at his home in Norton, Massachusetts, November 10. He had been seriously ill since last March.

He joined the Glenwood Range Company in 1930 as Design Engineer. Later he was Plant Superintendent, and for the last several years had been Chief Engineer. Mr. Wiley developed the first insulated, ventilated gas range in this country in 1923. He also played an important part in the development of many other important construction and functional improvements in gas cooking equipment.

GEORGE A. DUNCAN

A veteran of twenty-six aerial engagements at sea against the Japanese, twenty-one year old George A. Duncan of the American Gas Association Testing Laboratories was killed in action on September 13th, the Navy has revealed. His death came as a shock to his associates at the Laboratories, marking the first casualty sustained by the fifty former members of the staff now serving in the armed services.

Going to sea last February, he was stationed aboard a carrier, reportedly flying daily missions as a radioman and rear seat aerial gunner of a dive bomber. He is believed to have been shot down during the battle of Palau.

Activity

LAVINO ACTIVATED OXIDE is a quick-acting, "live wire" type of purifying material.

Capacity

Its extremely high percentage of Ferric Oxide causes MAXIMUM removal of H_2S per lb. of Oxide.

Performance

Over a long period of years, in hundreds of gas plants, LAVINO ACTIVATED OXIDE has consistently and continuously proved that it can be relied upon to give uniformly satisfactory and profitable results with loads of all sizes, from traces to the heaviest.

LAVINO "ACTIVATED" OXIDE

Supplied unmixed; or ready mixed in "Sponge" form.

E. J. LAVINO COMPANY
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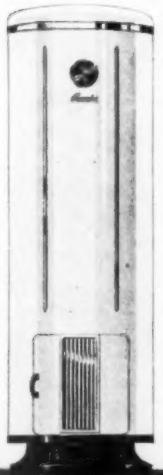

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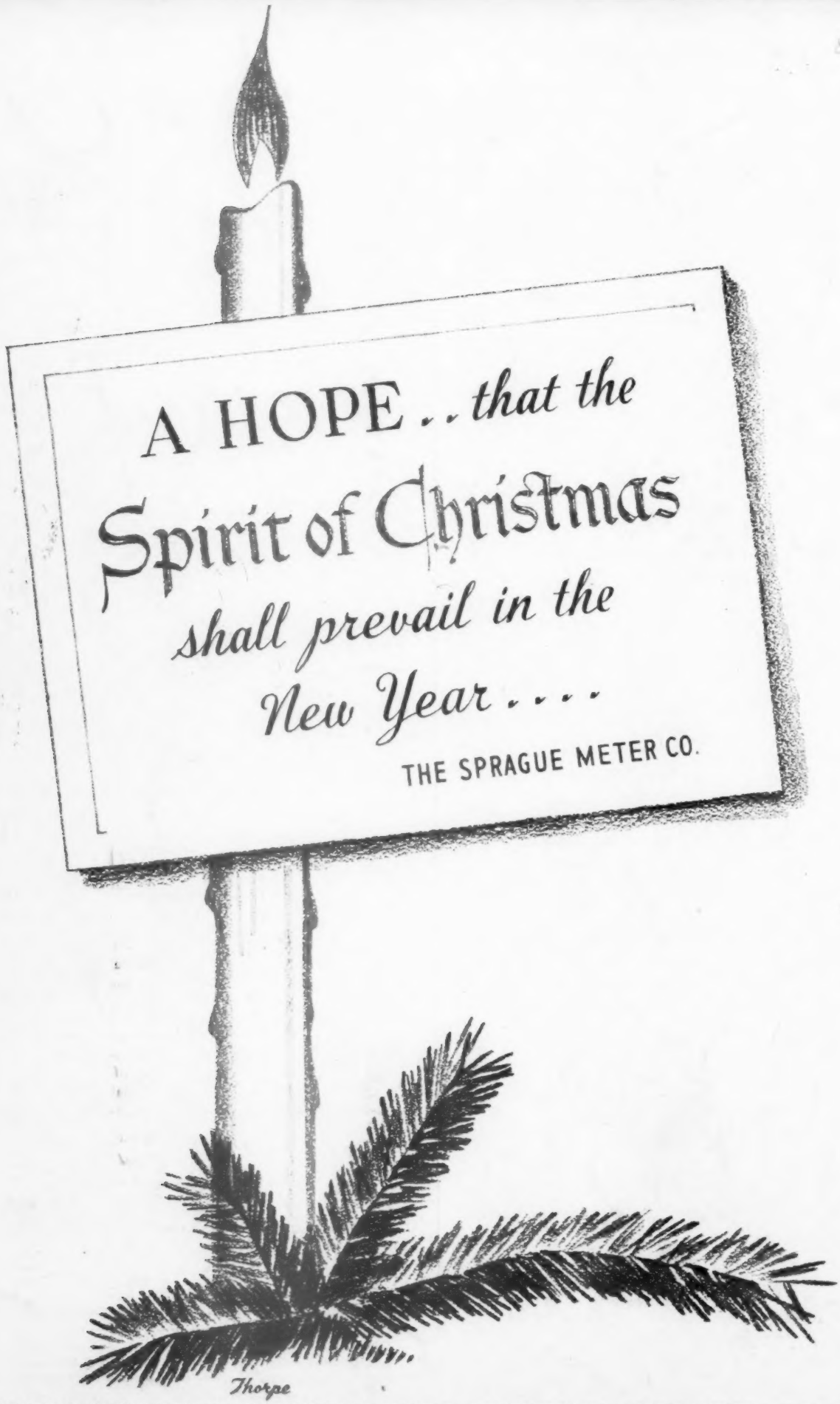
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